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# Worldwide Report

ENVIRONMENTAL QUALITY

No. 320



FOREIGN BROADCAST INFORMATION SERVICE

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# WORLDWIDE REPORT ENVIRONMENTAL QUALITY

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FEDERAL REPORT SAYS EVIDENCE LINKS HERBICIDES, MALADIES

Melbourne THE AGE in English 10 Jul 81 p 3

[Article by Paul Chadwick]

[Text]

A Federal Government report contains scientific evidence linking cancer, birth defects and psychological disorders to chemicals in sprays used in Vietnam and till used in Australia.

The report lists studies of humans and animals exposed to herbicides and pesticides, including Agent Orange, that have recorded foetal deaths and damage, increased risk of soft tissue cancer and adverse effects on liver, kidney, skin, breathing, appetite and the central nervous system.

It is "highly probable" that Australian troops in Vietnam frequently did not follow safety precautions when handling chemicals and "it may be assumed" that many men did not appreciate the possible "adverse health effects resulting from excessive exposure," the report says.

The report lists among its references studies by the US National Academy of Sciences; Swedish researchers on whose work the Victorian Government study of 2,4-D and 2,4,5-T is based; the World Health Organisation; the US Air Force Occupational and Environmental Health Laboratory; the US Department of Health, Education and Welfare.

The Minister for Veterans Affairs,

Senator Messner, said yesterday there was "no credible evidence at this stage of the game that indicates that there is any connection between Agent Orange and any disabilities".

Senator Messner, who returned from a three-week fact-finding visit to the US last Saturday, told reporters this week that herbicides were not the cause of veterans' physical and psychological problems. Rather, they were suffering from a "nervous stress syndrome" resulting from the trauma of war.

The existence of the Government report, 'Pesticides Used in Vietnam Hostilities and their use in Australian Agriculture: A Comparative Study', was revealed in answers by the Minister for Defence, Mr Killen, to questions on notice by Labor MHR, Mr Clyde Holding. A copy has been supplied to 'The Age'.

A spokesman for Mr Holding, who is in the Northern Territory, said last night that Senator Messner was "at complete odds with two major Government departments" and his position was not credible. "Not only does Senator Messner not understand the issue, but even worse, he is complicit in the Government's cover-up," the spokesman said.

The report has a disclaimer on its title page which reads: "This

report contains background information and does not in any way represent the views of the Government."

It says there is no evidence that the chemical constituents of pesticides used in the war were different from those used for agricultural spraying, but application and concentrations differ. The benefits of pesticide use should not be eclipsed by the "alleged dangers attributed to application under conditions of war in Vietnam".

The report lists scientific research into the effects on humans and animals of 2,4-D and 2,4,5-T. These chemicals in equal parts made up Agent Orange and were present in agents Purple, Green and Pink. The lethal contaminant of 2,4,5-T is dioxin or TCDD. It is blamed in the report for skin, liver, heart, fat, urinary, respiratory and sensory disorders. It also is a reported cause of depression, lack of drive, emotional and sleep disorders and diminished libido.

The Victorian Vietnam Veterans' Association's president, Mr Adrian Bishop, said yesterday that Senator Messner had a fixation with Agent Orange. Veterans were claiming multiple exposure effects from Agent Blue (arsenic-based), melathion, dieldrin, parquat, and other chemicals.

EPA MAPS TOUGH WASTE DISCHARGE POLICY FOR MELBOURNE

Melbourne THE AGE in English 11 Jul 81 p 16

[Article by Andrew Bolt]

[Text]

Industry in Melbourne's western suburbs will have to phase out mercury discharges during the next five years, under a draft policy developed by the Environment Protection Authority.

The draft policy also recommends that an adequate sewerage system be developed to take in the 10,800 allotments in the policy area which are unsewered. The sullage water and septic tank effluent from these allotments were causing high bacterial levels in some of the creeks in the area, as well as a high level of nutrients and low levels of dissolved oxygen.

The draft policy estimates the cost of providing a sewerage system in the area to be \$20 million. It also recommends that the Government pay for a water-quality management programme for the policy region, which would cost about \$50,000 a year.

The EPA's senior water quality officer, Mr Ian Coles, has said that the authority took a tougher stand in its revised draft policy than in its original draft in 1975.

Mr Coles said the clampdown had affected heavy-metal emissions in particular, although requirements had been relaxed a little for Stony Creek, which had since been lined with concrete for much of its length. He said the authority realised there was only so much it could do to "rehabilitate" a concrete creek.

The draft policy is expected to go before Cabinet early next year, after the authority has assessed public submissions.

The revised draft environment protection policy for the surface water of the western metropolitan region aims to clean several small creeks in the area. The draft policy imposes strict limits on discharges of heavy metals in particular, which were affecting Kororoit and Stony Creeks.

The EPA said a recent study of the Kororoit Creek had shown that average concentrations of mercury, copper, chromium, zinc and lead were up to three times higher than the estimated threshold level beyond which sensitive species are killed.

CSO: 5000/7580

# STATES' BATTLE OVER MURRAY, WATER RESOURCES INTENSIFIES

Canberra THE WEEKEND AUSTRALIAN in English 11-12 Jul 81 p 5

[Article by Russell Schneider]

[Text]

THE battle for water resources is looming as a major political issue.

Two States — NSW and South Australia — are going for the jugular in their battle over the use of the River Murray.

And councils, farmers and businessmen are making sure the water question isn't shelved.

This pressure will result in growing federal tensions as the Cabinet, torn between political popularity and economic restraint, faces clashes on the allocation of limited cash.

National Country Party MPs will be pressed by their supporters to force Canberra to take a stronger stand over water control.

The importance of the issue was illustrated in a meeting in the central north-western NSW town of Bourke this week.

The Acting Prime Minister, Mr Anthony, spent the day at a meeting of rural councils and water users from NSW, Queensland and South Australia to discuss a radical scheme to divert the north-eastern rivers inland to unclog the choked Darling-Murray system.

Mr Anthony was joined by the NSW Minister for Water Resources, Mr Gordon.

They faced a crowd of more than 200 people determined to force more political attention on water usage.

The meeting also set up a National Water Resources Association — a lobby group to press for more government money to expand water supplies.

The association elected a committee of 23 to examine proposals for water development.

One of the association's main aims is to press governments to agree to provide the money for the radical scheme to divert the Clarence River, in northern NSW, inland across the Great Dividing Range.

This would provide control for the flood-prone Clarence, and boost water flow in the Darling-Murray system.

But it would be enormously expensive, ranking at least with the Snowy scheme, and possibly costlier.

It would require a complex system of dams, pumping stations and tunnels to move the water uphill.

The NSW Government is already considering the scheme, regarded as a pipedream by some, but an equally emotive issue to water-starved farmers and graziers inland.

The trouble is cost.

The NSW Water Resources Commission estimates show any diversion scheme would be between two and 10 times the cost of building more dams on the Darling.

But a number of NCP electorates would be affected — and would benefit — from the scheme, and the mood of the meeting showed that the NCP would come under pressure to back it.

I understand Mr Anthony believes a series of dams on the Darling would be a preferable short-term alternative to the diversion.

But he does see the diversion scheme as an interesting long-term possibility.

But no matter how realistic Mr Anthony may be, he cannot escape the pressure that will be placed on him and his colleagues from their own supporters to push hard for the money to build the dams.

The Government is already in trouble with

farmers for failing to live up to its promise to spend more on water projects.

During the 1977 election campaign, Mr. Anthony promised that the Government would provide up to \$200 million over five years for dams and similar water conservation projects.

So far it has spent only \$77 million — a shortfall obvious to the rural community.

Mr. Anthony justified the failure to provide as much as was promised by the overall economic problems and the need for restraint, a justification which did not cut much ice with his audience.

But he also made it plain his party would push its Liberal partners to divert funds to water projects as soon as the money became available.

The reason is simple: increased water supplies will help rural prosperity, assist overcoming unemployment in country towns, and lead to an improved social environment.

Liberals see cost as the problem. Most water conservation projects are immensely expensive, and usually the direct returns — from

charges to irrigators — are less than the cost of maintenance, let alone capital investment.

The larger Liberal section of the Government, while acknowledging the national importance of water projects, is reluctant to spend money on them — and points repeatedly to the failure of the Ord scheme in Western Australia to justify its reluctance to spend.

Spelling out his own intentions last week, Mr. Anthony said:

"Australia must reappraise its priorities for water development. The development of water as a key resource in national development must become a reality."

"If governments can entertain the idea of finding massive amounts of money for something as transient as hosting an Olympic Games or an Expo, then I find it hard to accept that we can't find the money for projects of permanent and increasing value and importance."

Mr. Anthony has never run from a Cabinet fight when his own interests were involved. The water fight will be an interesting one, indeed.

# WA GOVERNMENT MOVES TO GIVE LANDOWNERS VETO OVER MINING

Perth THE WEST AUSTRALIAN in English 11 Jul 81 p 4

[Text]

The proposed amendment to the 1978 Mining Act would restore the provisions of the 1904 Act governing the rights of private land-holders.

Government MPs had been worried that private land-holders would not be adequately protected under the provisions of the 1978 legislation.

Some thought it would be easier under the new legislation for miners to obtain rights to land under cultivation.

The Primary Industry Association mounted a long and strong campaign against the 1978 legislation and the National Party announced plans in April to amend the legislation with the aim of protecting private land-holders.

The Premier, Sir Charles Court, said yesterday that the Government had been worried about cases of misuse of the right of veto.

But the Government wanted to protect farmers who genuinely wanted to continue farming.

It would introduce an amendment when Parliament resumed next

month restoring the principles contained in the 1970 amendments to the 1904 Act.

## COMPENSATION

The Government would also amend provisions dealing with compensation for pastoralists.

It proposed to give specific power to the warden to fix compensation in the absence of agreement between the parties before mining started.

This Power would be used if the warden was satisfied that mining other than prospecting or exploration on a mining lease within a pastoral lease was substantial and could result in a significant loss of earnings to the pastoralist.

The proposed amendment would be discussed with the Pastoralists and Graziers' Association.

Pastoralists would have the right of appeal to the Supreme Court against the warden's decision.

Government MPs have also approved another proposal to transfer oil-shale exploration from the Petroleum Act to the Mining Act.

## REPORT ON OCEANOGRAPHY INSTITUTE POLLUTION STUDY

Madras THE HINDU in English 2 Jul 81 p 8

[Article by N. N. Sachitanand: "How Polluted Are Our Seas?"]

[Text]

**M**AN has tended to regard the sea as a universal sink in which the wastes generated by him can be conveniently dumped and forgotten. Only in the past few decades, certain manifestations such as the fouling of beach resorts by petroleum residues and the Minamata Bay incident in which people were struck by paralysis due to consumption of mercury-contaminated fish, have opened man's eyes to the fact that the sea is not an inexhaustible sink for pollutants.

Monitoring of marine pollution has become an important activity for the industrially advanced littoral countries. India, with its immense population and sizable modern industry, pours in vast quantities of waste (see table) into the surrounding seas. On top of this, the Arabian Sea, bordering the country's West Coast, contains the most heavily travelled oil tanker route in the world (see figure), which means considerable chances of petroleum pollution of the Northern Arabian Sea waters.

The National Institute of Oceanography, Goa, has undertaken in the past 10 years several research programmes to monitor the extent of pollution in the seas bounding the Indian shores. One such programme was the Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP) under the framework of the Integrated Global Ocean Station System (IGOSS).

It was a multi-nation project initiated in 1975 and the components included for observation were:

- (1) Oil slicks and other floating pollutants;
- (2) Particulate petroleum residues;
- (3) Dissolved/dispersed hydrocarbons and
- (4) Tar balls on beaches.

**Indian observations**

The Japan Oceanographic Data Centre at Tokyo was nominated the regional data centre for the Indian Ocean region. The Indian observations covered the Arabian Sea and the Bay of Bengal. According to Dr R. Sengupta, the Regional Coordinator of the project for the Indian Ocean region, the following salient facts have been noticed in the past five years of observations as far as the seas around India are concerned:

(1) Due to the shoreward direction of surface currents during the monsoon months of May-October along the West Coast of India, tar balls from petroleum spills cover the beaches from Kutch to Kanyakumari. About 1,000 tonnes of tar balls were deposited thus during 1975 which were reduced to 750 tonnes in 1978 due to the reopening of the Suez Canal and the consequent diversion of oil tankers to the Mediterranean route. Since, during the rest of the year, the current flows away from the shore, these tar balls are carried back into the sea.

Some of the tar balls are also buried beneath the sand redeposited on the beaches during the post-monsoon months. Thus, while the tourism industry is not affected by these deposited tar balls, fishing is hampered by the floating balls fouling the nets.

(2) Floating tar balls naturally, were nearer to the oil tanker routes. The concentrations in the Arabian Sea range from 0 to 6 mg/sq.m. of sea surface and in the Bay of Bengal from 0 to 70 mg/sq.m. The total amount of floating tar balls on the surface at any given time is about 3,700 tonnes for the Arabian Sea and 1,100 tonnes for the Bay of Bengal.

### Petroleum residues

(3) Up to a depth of 20 metres, the Arabian Sea waters contain 32.5 parts per billion (average value) of dissolved and dispersed petroleum residues derived from oil spills, refinery effluent, atmospheric fallout and end-products of photo-oxidation and bio-degradation. For the Bay of Bengal, the average content is 24.1 parts per billion.

It was noticed that in the Arabian Sea, the contamination levels near the coast and along the tanker routes were not very different, whereas the difference is very great in the Bay of Bengal. This is probably due to greater harbour activities and intensive nearshore fishing in the Arabian Sea which leads to a greater oil pollution in coastal waters of the Arabian Sea as compared to the Bay of Bengal.

Overall however, considering the magnitude of transportation of oil across the Arabian Sea and the Bay of Bengal, both the seas appear relatively clean. Further, with the deepening of the Suez Canal, the tonnage of oil moved across these waters will decrease considerably in the future.

Then again, oil pollution of the sea from bilge washing of tankers is being reduced with more and more ships going in for on-board waste treatment plants and the Load on Top (LOT) system in which one tank in the ship is reserved for washings which are discharged into a shore-based tank.

The future, therefore, does not appear to be bleak as far as the oil pollution of the seas around India is concerned. However, the new pollutants will be the offshore oil wells and new shore-based oil refineries.

As for oil slicks resulting from accidents a number of chemicals have been developed to disperse the slicks. Some of the chemical agents may be toxic to marine life, so they have to be thoroughly tested.

The National Institute of Oceanography has acquired the expertise to test these dispersants. The Institute is also working on identifying certain strains of bacteria which are efficacious in bio-degrading petroleum residues.

### Toxic metals

Heavy metals occur in natural sea water and many of these have been found necessary to promote the growth of marine organisms. The heavy metals occurring naturally in sea water are at concentrations of parts per billion. However, due to heavy inflow of industrial effluents into the sea

during the past 15-20 years, the concentrations of several heavy metals in certain areas of the world oceans have increased by about one hundred fold.

Such over-accumulation may become harmful to marine life. This is particularly true of metals like mercury, which is considered to be the most toxic. It can not only harm marine animals but, passed along the food chain, can even harm man, as was so tragically proved in the Minamata Bay case in Japan in the Sixties.

Studies carried out on the concentration of heavy metals in the marine environment around India by the National Institute of Oceanography and the bioaccumulation of these metals in zooplankton indicate that there is as yet no cause for alarm. Studies carried out by Kurieshy and others of the mercury accumulation in fish in the Arabian Sea and the Bay of Bengal showed that the concentrations were far below the minimum of 0.5 ppm dry weight prescribed by the U.S. and several European countries.

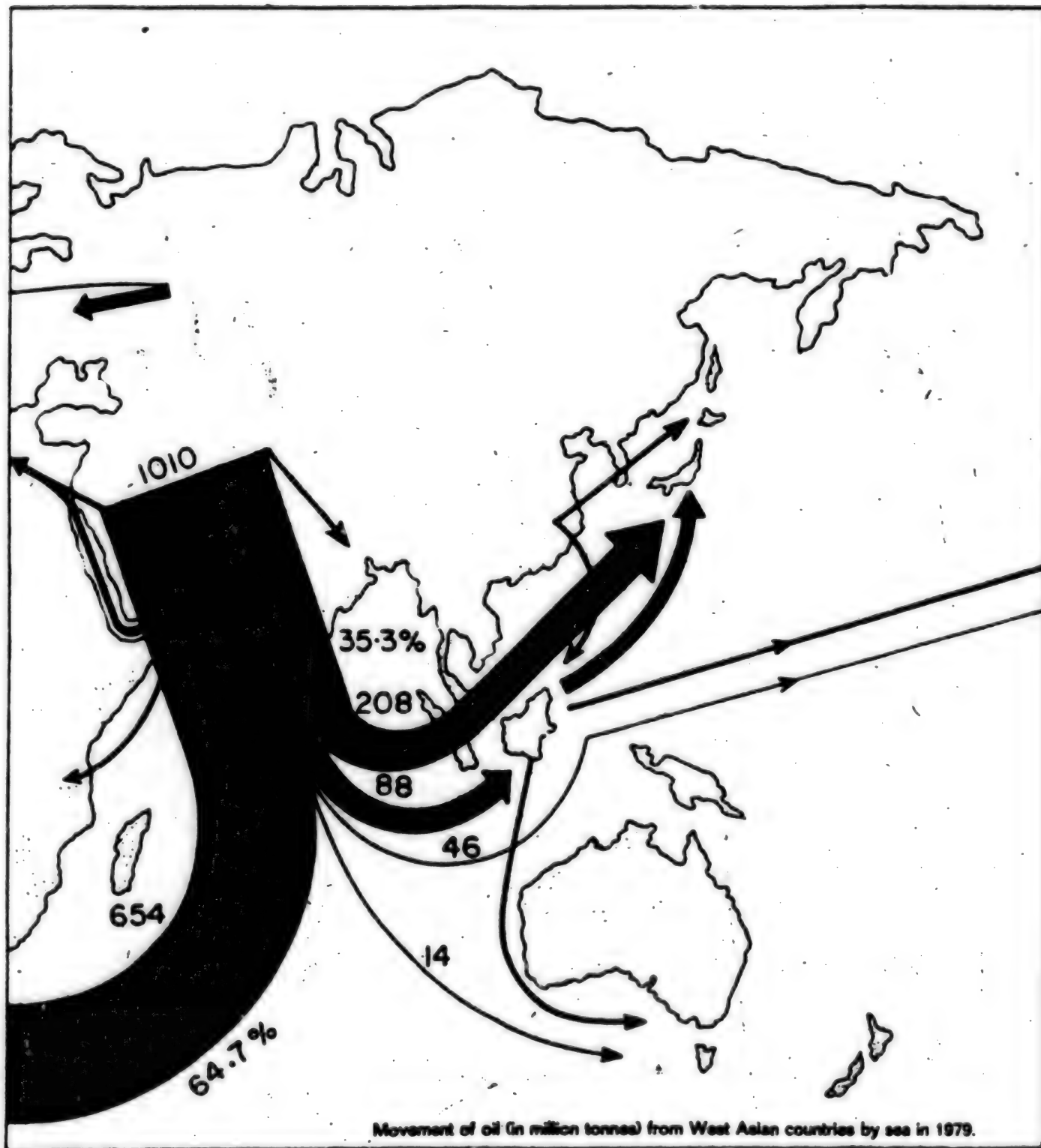
### Pesticides

Pesticides are another source of sea water pollution. In India about 77,000 tonnes of pesticides are used every year. It is commonly believed that 25 per cent of the pesticides will finally end up in the sea via river runoffs. The chlorinated hydrocarbon pesticides are insoluble in water but are absorbed by plankton in their body fat. These plankton form the first link of the food chain from the ocean.

However, measurements of DDT and its metabolites in the plankton of Indian coastal waters by NIO scientists have shown that the levels are very low. The total DDT in plankton of the northern part of the west coast of India is somewhat higher than in other regions but even there the values are much lower than the safe limits.

The table gives a fair idea of the man-generated biological and industrial pollutants added every year to the seas around India. Despite all these additions, these seas, except for a few places off metropolitan cities such as Bombay, Cochin, Madras and Surat, are relatively clean. This is because of the diurnal tides which flush the Indian coast twice a day.

The tidal range varies from about a metre at the southern tip of the country to about five metres in the Sunderbans and 7-8 metres in the Gulf of Khambat. But whether the marine environment will remain so clean in the coming years in the face of our galloping population and the attendant pollution it generates is doubtful.



Population and related data for India and some  
estimates of pollutants entering the sea around  
India (updated to 1979)

Population	639	million
Coastal population (25% of total)	160	million
Domestic sewage added to the sea by coastal population per year (60 l per head/day)	3.5	$\times 10^9 \text{ m}^3$
Industrial effluents added to the sea by coastal industries per year	0.35	$\times 10^9 \text{ m}^3$
Sewage and effluents added by the rivers to the sea per year	50	$\times 10^6 \text{ m}^3$
Solid waste and garbage generated by coastal Population per year (20% of this will go into the sea)	50	$\times 10^6 \text{ tonnes}$
Fertilizer used per year (25% of these will end up in the sea)	5	$\times 10^6 \text{ tonnes}$
Pesticides used per year	77,000	tonnes
Synthetic detergents used per year	125,000	tonnes
Oil transported in 1979 across the Arabian Sea	1009	$\times 10^6 \text{ tonnes}$
Oil transported to Western Hemisphere	654	$\times 10^6 \text{ tonnes}$
Oil transported to Far East and Japan	355	$\times 10^6 \text{ tonnes}$
Tar deposition on beaches from Kutch to Kerala		
1975	1,000	tonnes
1976	750	tonnes
Floating petroleum residue		
on Arabian Sea	3,700	tonnes
on Bay of Bengal	1,100	tonnes

CSO: 5000/7057

## NORTHEAST DENUDATION, TOPSOIL PROBLEMS DISCUSSED

Madras THE HINDU in English 8 Jul 81 p 8

[Text]

**W**ITH the world's largest area under what is commonly known as 'Jhum cultivation', North East India has for centuries been subjected to the dual scourge of denudation of forest resources and impoverishment of surface soil on account of wasteful and outmoded agricultural practices.

Described by the Governor, Mr. L. P. Singh, who is also the Chairman of the North Eastern Council, as the biggest curse of the region, 'jhumming' or shifting cultivation is a major problem of agriculture in the N.E. region, particularly in the hills, where out of an estimated 2.7 million hectares of land, under this method only a small percentage is believed to have been reclaimed for permanent cultivation so far.

"By 2000 AD if any one can put it down, it will be a great achievement indeed", said the NEC chairman at one of his recent press conferences. In one of his air journeys from Imphal to Gauhati, he had found that the atmosphere all the way was smoky and the hills were dotted with blazing forest.

As Chairman of the NEC, Mr. Singh had once suggested to the Union Government that top priority should be given to this problem of shifting cultivation and to this end he had proposed that World Bank assistance might be sought in view of the large capital outlay involved.

A study made by the NEC Secretariat struck a note of warning that "with the prevailing trend and steady rise in population of the region, the problem of shifting cultivation is gaining alarming proportions, threatening the ecological balance and economic prospects, as a result of rapid deterioration in soil productivity.

According to the NEC study, resettlement of all Jhumia and tribal families dependent on the shifting method of farming would require the development or reclamation of about 1.3 million hectares of land by 1989 and an investment of about Rs. 650 crores over a period of 10 years.

According to an official source, the present number of Jhumia families is 4.79 lakhs, and it is likely to rise to 6.5 lakhs in 1989, if the present 'alarming' trend continues.

Primitive, wasteful and uneconomic as it is in its practice, the Jhum cultivation has been known to be the bane of the economy of the entire North-Eastern Hills. But still it has not been easy to wean the highlanders from their traditional method of farming.

A significant step in the direction was, however, taken when 5,295 poor agriculturist families were settled in 1,13,000 hectares of land developed under the Soil Conservation and Control of Shifting Cultivation Programme launched under the auspices of the North Eastern Council during the Fifth Plan period.

The programme, which involved a total expenditure of Rs. 4.97 crores, was implemented in eight pilot projects taken up in the five States and two Union Territories of the region, Mizoram alone having two such pilot projects.

In addition, survey was arranged for soil and land use in the region with a view to facilitating efficient land use, according to an NEC source.

The practice of Jhumming is traditional with the tribals and it is so widespread that it is not possible, or desirable to do away with this age-old system completely. This is the view of administrative experts of the region. According to them, the solution is not easy because of the vastness and intensity of the problem, and the total abolition of the system is not considered desirable by some because of the psychological consideration bound up with the social fabric.

Opinion is in favour of gradual transition from tradition to modernity with understanding so that the tribals enthusiastically adapt themselves to the change. In fact a slow

change is discernible. A co-existence of the traditional and the modern methods may have the desired objective ultimately.

There was a time, not long ago, when the only method of cultivation known in the North-Eastern hills was Jhum or shifting cultivation of the slash and burn method. Neither plough nor draught animals were known. The picture has changed, although not so appreciably as was initially expected with the introduction of modern methods.

The evil effects of Jhumming are rather glaring. In Meghalaya, for instance, half the forest areas of Garo Hills and three-fourths of the Khasi-Jaintia Hills have been denuded. Of course, it is not merely Jhumming that has brought about this sad situation in that State but also the unchecked indiscriminate felling of trees to meet the demand for timber.

In Meghalaya, most of the areas within the State fall in the heaviest rainfall belt of the world, where the annual average precipitation is between 1300 cm. and 1500 cm. Rainfall as high as 12.7 cm. per hour and 32 cm. per five minutes is also on record in places within the State. The heavy rainfall and its intensity causes splash erosion

on the slopes made bare of the vegetation cover by Jhumming.

On account of repeated Jhumming, in short duration, the cumulative loss of top-soil has become so high that many of the slopes are practically devoid of any top-soil. Many hitherto productive hill areas in the region have become bare areas with rocks.

It is felt that if Jhumming is not effectively checked, it could render most of the hill areas' land barren and useless in course of time.

However, besides the Soil Conservation and Control of Shifting Cultivation Programme, now under implementation, the NEC has undertaken a few other schemes in order to introduce an element of dynamism in the stagnant rural scene in the region.

During the last few years a major attempt has been made to acquaint agriculturists with some new practices and to make available to them improved varieties of field, tuber, root and spice crops and also introduce improved varieties of major temperate, tropical and sub-tropical fruit crops.

CSO: 5000/7058

## ENVIRONMENTALISTS CHALLENGE ALUMINUM SMELTER IN COURT

### Crown Documents Demanded

Wellington THE EVENING POST in English 25 Jun 81 p 25

[Excerpt]

The Government must hand over documents put before cabinet since it decided, on April 27 last, to approve the second aluminium smelter at Aramoana.

In what is believed to be an unprecedented move by a

New Zealand court the Court of Appeal has unanimously made an order for discovery against the Crown in respect of those documents.

The court comprised the acting president, Sir Robin Cooke, Mr Justice Richardson and Mr Justice McMullin.

### Groups

The order, sought by two environmental groups, the Environmental Defence Society and the Royal Forest and Bird Protection Society of New Zealand, was opposed by the Acting Prime Minister, Mr MacIntyre.

The applicants are challenging the legality of the cabinet decision to approve the smelter, using the fast track procedures of the National Development Act.

The substantive hearing of the action is set down for next week.

### Opponents Denied Access

Wellington THE EVENING POST in English 26 Jun 81 p 6

[Excerpts]

Cabinet papers relating to the decision to approve the Aramoana aluminium smelter will not now be available in court to opponents of the project.

A decision to this effect was made in a judgment delivered in the Court of Appeal today.

On Wednesday the court made an order for discovery requiring the Crown to hand over for perusal by members of the court documents

before cabinet and the Executive Council last April when the decision for approval was made.

The order made for production of the documents for inspection was duly complied with yesterday, the judgment, delivered by the acting-president said.

"We have now inspected the documents. In doing so we have had special regard to the substantial doubt which was created by the

terms of the ministerial objection to production and which is referred to in our previous judgments," the judgment said.

### Unanimous

"Having inspected them the court is satisfied unanimously, and notwithstanding the terms of the ministerial objection, that the interests of justice do not require any disclosure of the contents of the documents to the applicants.

"The applicants will suffer no injustice by non-disclosure.

"Accordingly no order will be made for production to the applicants and the documents will be returned to the Crown when this judgment is delivered.

"This decision is without prejudice to the right of the Crown to apply for leave to have the documents admitted in evidence at the hearing."

### First Appeal Court Case

Wellington THE EVENING POST in English 30 Jun 81 p 6

[Excerpt] The validity of the Government's decision to approve an aluminium smelter at Aramoana, near Dunedin, was challenged in the Court of Appeal today.

A declaration is being sought by environmental groups that the decision is ultra vires the National Planning Act.

Other remedies being sought are a writ of certiorari to set aside or quash the Government's decision and a writ of prohibition against the Planning Tribunal to prevent it carrying out an inquiry under the

fast track provisions of the act.

The court comprises Mr Justice Cooke, Mr Justice Richardson and Mr Justice McMullin.

Two separate actions are being heard together.

In the first the Coalition for Rational Economic and Environmental Development in New Zealand and Mr Gary John Holden, an en-

vironmentalist, are represented by Mr C S Withnall, with him Mr M W Newell. The respondents are the Governor-General and the Planning Tribunal, represented by the Solicitor-General, Mr D P Neazor, QC, with him Mr K Robinson, South Pacific Aluminium Ltd (Mr E W Thomas, QC, with him Mr R H Hansen and Mr J F Timmins). The Otago Harbour Board is rep-

resented by Mr A D Paterson and the Commission for the Environment by Mr R J Somerville, with him Mrs S Kernadine.

In the second action the applicants are the Environmental Defence Society and the Royal Forest and Bird Protection Society of New Zealand, represented by Mr G P Barton, with him Mrs M Frater and Mr J F Timmins.

## Second Appeal Court Case

Wellington THE EVENING POST in English 6 Jul 81 p 4

[Excerpt]

**AN application for a judicial review of the Government's decision to approve an aluminium smelter at Aramoana was heard in the Court of Appeal today.**

Last week the court heard a similar application by Creednz (Coalition for national Environmental and Economic Development in New Zealand) and Mr Gary John Holden, a property owner at Aramoana. Decision was reserved.

Today's application is by the Environmental Defence Society and the Royal Forest and Bird Protection Society of New Zealand.

The court comprises Mr Justice Cooke, Mr Justice Richardson and Mr Justice McMullin.

## Court Reserves Decision

Wellington THE EVENING POST in English 8 Jul 81 p 9

[Text]

Decision was reserved by the Court of Appeal yesterday after a hearing relating to the proposed Aramoana aluminium smelter.

The Environmental Defence Society and the Royal Forest and Bird Protection Society of New Zealand are seeking a judicial review of the Government's decision to use the fast track provisions of the Natural Development Act to approve the establishment of the smelter by South Pacific Aluminium Limited.

Respondents in the action are the Governor-General, the Minister of National Development, South Pacific

Aluminium Limited, the Otago Harbour Board and the Commission for the Environment.

Replying on behalf of the Crown the Solicitor-General, Mr D P Neazor, QC, said that now that the cabinet paper in which the smelter project was considered had been produced in court, it was manifest that the allegations by the applicants were untenable.

The paper described the proposed work, set out the consents sought, drew attention to the criteria in the National Development Act, summarised the arguments put forward by South Pacific Aluminium Limited and the Otago Harbour Board and

placed the minister's comments before his colleagues.

The examination of the criteria was not uncritical and the minister had recommended against acceptance of one of them having been made out.

The paper did not attempt a definition of the term "essential" and there was no reason why it should.

Where the national interest lay was a matter neither of law nor of fact. It was pre-eminently a matter of opinion within the province of those with constitutional authority for determining what laws will be proposed to Parliament. What was "likely" in relation to the national interest fell within the same category.

Mr Neazor said it was not to be taken that the national interest aspect of the matter was not fully considered because it was not referred to extensively in the paper. That was the very ingredient in the decision which one would expect would be added in the course of consideration of the matter by ministers.

Mr Neazor submitted that ministers had the application properly put before them, that their attention was drawn only to relevant considerations and the proper criteria by which they were to be judged and there was no demonstrable error of law in their decision, which was within the four corners of their statutory power.

Wellington THE EVENING POST in English 7 Jul 81 p 10

[Text]

NO precedent had been established by the decision to turn a cabinet document over to environmentalists, the Minister of Justice, Mr McLay, said.

Mr McLay was questioned about the move — approved by the cabinet yesterday — which came after an adjournment in

the Court of Appeal, where environmentalists are contesting an Executive Council order approving fast track planning for the Aramoana aluminium smelter.

The court had said it believed it might be in the interests of the public and justice if the cabinet submission on which it

based its recommendation to the Governor-General was made available, Mr McLay said.

The week before last the court had upheld the Crown's claim for privilege, he added.

That decision had been one of considerable constitutional importance, Mr McLay said.

The move to hand over the document was "done by the Crown on its decision, and not on the basis of the court ordering it."

"No precedent has been established by that decision itself."

Mr McLay said he was not under the impression that the court would have made an order.

### Environmental Impact Report

Wellington THE EVENING POST in English 4 Jul 81 p 4

[Report by Energy Reporter Michael Field]

[Excerpts] **THE PLANNED** second aluminium smelter, estimated to cost \$650 million, will have little impact on the environment, a major report released today says.

A 284-page environmental impact report on the proposed smelter was released by the Commission for the Environment. It was prepared for the consortium building the smelter, South Pacific Aluminium Ltd and the Otago Harbour Board.

The report, detailing the impact of the smelter at Aramoana near Dunedin, is by far the largest such report yet presented on the major energy development proposals. It was written by the Auckland town planning specialists Murray-North Partners Ltd, the same firm which prepared a similar report on the stand-alone methanol plant in Taranaki.

With the release of the report today, the public timetable for procedures under the fast-track provisions of the National Development Act is set in train.

Interested people have six weeks from now in which to prepare counter submissions for the commission which is then required to produce a detailed audit of the report by October 8.

It will then go before a planning tribunal which is required to hold public hearings not less than six weeks and not more than nine weeks after the release of the audit.

The use of the fast track has this week been the subject of a Court of Appeal hearing.

The smelter report concedes that the smelter will mean Aramoana and Te Ngāru residents at the entrance to Otago Harbour will lose "virtually all the elements of the area which are valuable to them."

Earlier, in the summary, the report said the smelter will result in only small changes to the environmental quality of the area, and will pose "little threat" to existing flora and fauna.

The report also says the smelter will "not have adverse implications" for the royal albatross colony at Tairāroa Head. Proposed harbour works and reclamation will not affect the harbour, and the noise generation from the project will "result in only a slight increase in existing noise levels."

"In promoting the project (the company) is mindful of its obligations to ensure that the development does not result in significant deterioration of the environment."

"It is also aware of the need to ensure the health of its employees is safeguarded. It intends to be both a good neighbour and a good employer."

The consortium selected Aramoana from four possible South Island sites on the basis of its deep-water access, good wind dispersion, adequate size, as "a site of little agricultural value" and the ability of Dunedin to service the project's requirements.

Wellington THE EVENING POST in English 1 Jul 81 p 12

[Report by Energy Reporter Michael Field]

[Text]

The controversial planned second aluminium smelter is about to be launched on its fast track planning procedures despite the opening in Wellington yesterday of a Court of Appeal hearing disputing that action.

The Commission for the Environment has distributed 450 copies of an environmental impact report published by the consortium which will build and operate the smelter at Aramoana near Dunedin, South Pacific Aluminium Ltd.

Publication by the media of its contents has been embargoed until Saturday.

Earlier this year an order-in-council was granted by the Government placing the proposal on the so-called fast track of the National Development Act.

However the Environmental Defence Society and the Royal Forest and Bird Protection Society have

sought a judicial review of that decision.

That review opened yesterday in the Court of Appeal.

## Valid

Although the matter is in court, the commission and South Pacific have continued to carry on the work as if the order-in-council was valid.

With the publication of the impact report on Saturday, and the publication by the commission of public notices calling for public submissions on the report, a tight legal timetable swings into effect.

Under the National Development Act people have six weeks to absorb the 284-page report and give submissions to the commission. The commission will then have until October 9 to publish an audit of the impact report.

As soon as practicable after receiving a certificate of the completion of the audit,

the registrar of the Planning Tribunal will give notice of a public hearing to be held at a date "not less than six weeks nor more than eight weeks after the date of the public notice," assuming the fastest possible publication of a public notice, the earliest date for a hearing would be November 23.

## Approval

A smelter consortium source told the "Post" yesterday they hope to receive planning approvals by the end of this year.

However they may run into another problem with the act: it abolishes the period between December 20 and January 20. "No account shall be taken of the period," a section of the act says.

However the source said the company was working to eliminate problems created by any potential planning delays. He said they were doing all the work they could possibly do now, and were

hopeful of being able to start construction within days of receiving approval.

This would, however, be dependent on any conditions placed on the approval. At that point the consortium would be faced with a "go no-go" decision.

The head of the commission team carrying out the audit, Mr Paddy Gesham, told the "Post" yesterday that meeting the timetable "will not be easier".

A delay by the company in completing the report — it had been promised in March — had created some staffing problems. Mr Gesham said a three-person team would work full-time on the audit, while a bigger team of experts in various fields would offer contributions to the work.

They had already gathered in extensive amounts of data on aluminium smelting worldwide, Mr Gesham said.

## Mayor Raps Environmentalism

Wellington THE EVENING POST in English 9 Jul 81 p 17

[Text]

DUNEDIN, July 7 (PA). — It is hard to escape the conclusion that environmentalism is anti-everything, especially anti-business, the Mayor of Dunedin, Mr C G Skeggs, said today in Queenstown.

Addressing the New Zealand Groundspread Fertilisers' Association, he said one of the most curious things about environmen-

talism was that it was considered to be a very liberal cause, when in fact it was a highly conservative philosophy.

"Placing value more on spiritual values over material progress and to look down on industry and commercial activity as something vulgar and distasteful really constitutes time-worn aristocratic attitudes," he claimed.

The new aluminium smelter had been offered to Dunedin and would give a lift that had been badly needed throughout the entire city, but the environmentalists and those who had other political reasons for opposing it, constituted a very real threat to the city by their opposition, Mr Skeggs said.

"There has to be compromise. Those who make

the most noise about the smelter are a most entirely middle class articulate people based around the university and almost all are in work.

"Moreover, a large percentage are not dependent on private enterprise for their monthly pay-cheque but get it from the taxpayer," the mayor said.

## ENVIRONMENTALISTS OPEN HIGH COURT TEST OF MINING ACT

## Coromandel Peninsula Affected

Auckland THE NEW ZEALAND HERALD in English 23 Jun 81 p 4

[Text]

**The Environmental Defence Society opened a High Court test of the Mining Act yesterday, claiming that objectors to recent Coromandel Peninsula prospecting applications had been denied a proper hearing.**

The society, on behalf of other objectors, is asking the High Court at Auckland to overturn a Thames District Court ruling that evidence of the impact of future mining is inadmissible at a hearing of objections to a prospecting licence application.

Mr A. P. Randerson, for the society, told Mr Justice Speight that many proceedings of prospecting applications around New Zealand were awaiting a final ruling on the question.

"To a considerable extent this can be regarded as a test case," he said.

The Mining Act, 1971, gave a successful applicant for a prospecting licence an automatic right to a mining licence if he wished to go ahead.

Mr Randerson said: "In view of the absence of any public right of objection when application is made for a mining licence, evidence as to mining must and should

be admissible in support of an objection to a prospecting licence."

**Ruled Out**

In the case before the court for review, Judge John Patterson in the Thames court had ruled out evidence relating to eventual mining when considering prospecting applications by Goldmines of New Zealand Ltd concerning more than 2000 hectares of land on the Kuaotunu Peninsula, north of Whitianga.

Mr Randerson said the area contained attractive beaches and coastline and was "environmentally sensitive."

The applicant company was 92 per cent owned by an Anglo-American concern, one of the largest mining companies in the world, he told the court.

Technological advances in mining would allow the company to move large quantities of low-grade ore for an economic return.

"Although the objectors had objections to a number of elements relating solely to prospecting, the great thrust of the objections centred on the threat of large-scale open-cast mining in the future," he said.

"The exclusion of such evidence went to the very heart of the objectors' case and prevented them from obtaining a hearing on a matter of prime importance to them."

The lower court judge's ruling had also prevented counsel for the objectors cross-examining company witnesses on their future mining plans.

Mr Randerson submitted that Judge Patterson had "committed an error of law" or acted in excess of his jurisdiction.

**Rehearing**

He had "wrongly interpreted the Mining Act and thereby misconceived the scope of his inquiries."

He had also wrongly stated that the onus to prove their

objections lay with the objectors, Mr Randerson said.

None of the parties bore an onus of proof when the hearing was in the nature of an investigation by the judge, preparatory to his report to the Minister of Mines.

The society sought a High Court order for a re-hearing in the district court on the question of future mining and an order prohibiting the lower court judge from reporting to the minister until a re-hearing was held.

The society also sought a declaration that the judge had been wrong in law to exclude the mining evidence and had also been wrong in placing onus of proof on the objectors.

Mr E. W. Thomas, QC, appears for Goldmines of New Zealand Ltd. Mr K. Robinson is representing the Minister of Mines.

The hearing is expected to last two more days.

**Judge Reserves Decision**

Auckland THE NEW ZEALAND HERALD in English 25 Jun 81 p 4

[Text]

**A judge reserved his decision yesterday at the end of a three-day hearing in the High Court at Auckland on the rights of the public to object to mining on the Coromandel.**

Mr Justice Speight has been asked to rule on whether objectors can call evidence on the environmental impact of mining when public objections are heard against a prospecting application.

The counsel for all parties at the hearing have agreed that the Mining Act 1971 gives the public no rights to object when a company with a prospecting licence exercises its right for a licence to mine.

The case has been brought by the Environmental Defence Society against Goldmines of New Zealand Ltd which has applied for three prospecting licences covering more than 2000 hectares of the Kuaotunu peninsula near Whitianga.

## Overturn

The society has asked the judge to overturn a ruling by District Court Judge John Patterson that evidence related to mining was inadmissible at the February hearing in Thames of objections to Goldmines' application for a prospecting licence.

Judge Patterson and the Minister of Energy, Mr Birch, are joint respondents with the company in the society's motion for review.

Mr A. P. Randerson, for the society, told Mr Justice Speight yesterday that having to face public objections was a small price to pay for the mining rights given to holders of a prospecting licence under section 57 of the act.

## Forest

The possibility of large-scale damage from mining

could never be raised if it was disallowed at the prospecting licence inquiry, he said.

An area in question might be covered in mature kauri forest which would be unharmed by prospecting bores but would be destroyed by any sort of mining.

Mr Randerson said that according to the company's view of the procedures, even the minister would be unable to prevent mining on those grounds if a prospecting licence had already been given.

If evidence of the probable impact of mining was admitted at the initial inquiry, it would give the applicant company early warning of environmental difficulties before it went to the expense of prospecting investigations.

For the company, Mr E. W. Thomas, QC, said admis-

sion of evidence of possible future mining damage would place an unfair burden on a company seeking a prospecting licence.

## Years

The company could not know the scale and type of mining, if any, that could be embarked upon until after years of investigations under the prospecting licence.

"It would be easy for the objectors to raise all sorts of fears but it would not be easy for the company to give an adequate answer," Mr Thomas said.

"Evidence would be speculative, he said.

It would be just as valid for the company to introduce evidence of the dire straits of the country's economy, the employment benefits and spin-off industry generated by possible future mining.

# GOVERNMENT MAY LIMIT ROLE OF ENVIRONMENT COMMISSION

Cabinet Decision Seen

Auckland THE NEW ZEALAND HERALD in English 1 Jul 81 p 1

[Excerpt]

## The Government may be close to making a decision on the future role of the Commission for the Environment.

A cabinet discussion on the commission is expected to be held next Monday after being deferred from this week's cabinet meeting.

With the fate of the commission in the balance, the Minister for the Environment, Dr Shearer, is expected to ask his cabinet colleagues to allow time for further studies.

The commission has been under threat since last year, when it produced a critical environmental audit on the

CSR-Baigent Nelson pulp mill proposal which went too far for some cabinet ministers' liking.

Following the Baigent audit, the Government set in motion investigations into limiting the commission to examining only the "environmental" aspects of major development projects.

### Prepared

The various studies now seem to be reaching their climax.

Dr Shearer is said to have prepared a paper which is

expected to be discussed by the cabinet next Monday.

In the paper, he is said to be recommending further study before the cabinet makes a decision on whether to make significant changes to the commission.

He is taking the view that economic matters are inevitably intertwined with environmental issues as far as the commission's studies go.

And he is said to be arguing that any restriction on the commission could conflict with the National

Development Act provisions which call for the commission to prepare independent environmental audits on projects which fall under that act.

### Inquiries

Dr Shearer was not prepared to comment yesterday when asked how long the cabinet-level discussions would take.

"I see no requirement to talk about it," he said. "Just be patient."

## Background Information

Auckland THE NEW ZEALAND HERALD in English 1 Jul 81 p 16

[Article by David McLoughlin]

[Text]

The cloudy future of the Commission for the Environment stems directly from the confident, more assertive role the organisation has assumed in recent times.

Under the commissioner, Mr K. D. Piddington, who took up the post early last year after a career in foreign affairs and the Planning Council, the commission's outlook has noticeably broadened.

It branched out from looking at the purely "environmental" aspects of the projects it had to review and began commenting on the economic and social issues of major developments.

And that was too much for some senior cabinet ministers, such as the Prime Minister, Mr Muldoon, and the Minister of Energy, Mr Birch, who were starting to promote the benefits of the Government's "think big" development strategy.

Dissatisfaction with the commission's new role came to a head last year when it published a searching, critical environmental audit on the CSR-Baigent pulp mill planned for Nelson.

The prospect of an independent watchdog commenting adversely on key Government policy planks did not wear well with some in the cabinet, and it was not long after the CSR-Baigent uproar that moves were in hand to bring the commission back on a leash.

## No Notice

In some ways the spectacle seems extraordinary, because the commission legally is an animal without teeth.

Bereft of its own legislative backing, the commission can comment and make recommendations but developers need take no notice — though most do.

And because no legislative direction exists to define an environmental impact report and an environmental audit, the question of just what

constitutes those very important procedures shows signs of becoming murky.

The only mention of the commission in an act of Parliament is in the National Development Act, which states the commissioner must prepare an audit of projects which come under that legislation.

## Feel Way

The Commission for the Environment was formed in 1972 in the wake of the movement to stop the raising of Lake Manapouri to provide power for the Tiwai Pt aluminium smelter.

From the beginning it had no statutory backing to help it feel its way. The commission was set up by a cabinet minute and all that is needed to abolish or change it is another cabinet minute.

The first Minister for the Environment, the present Deputy Prime Minister, Mr MacIntyre, introduced the now-familiar system of environmental impact reports and audits which has continued in ever-growing form through to today.

Under the Labour Government of 1972-75, the fledgling commission expanded slightly, and in the past three years has really blossomed, taking a higher profile and becoming snared in occasional controversy.

## Outcomes

Today, with environmental matters crucial as the country strives to balance the need for rapid industrial development against protection of natural resources, the commission's future is an important issue.

The present cabinet investigations could lead to any of several outcomes.

The commission could be abolished or merged with some other body, such as the town and country planning division of the Ministry of Works and Development, an

organisation which is no friend of the commission.

It could be left in its present form, but with its cabinet minute substantially altered to stop it examining the economic implications of major projects.

## New Ministry

Parliament could pass legislation to define the role of the commission and give statutory outlines of its functions and machinery.

Or it could even be replaced by a new ministry for the environment, as recommended by the Organisation for Economic Co-operation and Development in a report to the Government earlier this year.

Whatever happens, it is obvious the commission needs strengthening if it is to carry out its purpose adequately.

Because of its small size, fears have been raised that it will not be able to cope with all the big projects being put in motion.

For example, a hold-up with South Pacific Aluminium's environmental impact report for the second aluminium smelter brought concern that the commission may soon have too many projects going at once to cope.

## Months Late

The smelter report, months late, has been given to the commission to audit just as commission staff are preparing to attend planning tribunal hearings on the Mobil synthetic petrol plant.

Mr Minogue says the environmental procedures for big projects have to be timed so they fall one after another, not all at once.

The commission also needs legislative backing, he argues, to save it from ministerial interference.

## Reluctant

Mr Minogue added: "It is my belief that the commission has been subject to ongoing political direction and the prospect is that it will continue to be subject to political direction."

Dr Shearer was reluctant to talk when asked to comment on the future of the commission.

"I'm confident the commission will continue to operate," he said.

Dr Shearer said his view would be "very much formed" after he saw the result of public submissions on the OECD report.

Those submissions were considered last week by the Environmental Council and the council's report could be made public shortly.

If, as seems likely, the Government decides to put the Luggate and Queensberry dams from the Clutha hydro scheme under the National Development Act, the commission will have difficulty managing all three projects at once.

To ease the manpower shortage, the new Minister for the Environment, Dr Shearer, has won approval to lift the commission's staff ceiling to 35, enabling three more investigating officers to be hired, giving the commission a total of 18 technical people.

## Impractical

But one arch-critic of moves to restrict the commission, the Government MP for Hamilton West, Mr Michael Minogue, says a lot more is needed than just extra staff.

"It is self evident that if these major projects come one on top of the other it is going to be impractical for the commissioner to discharge his functions adequately," Mr Minogue said.

# ENVIRONMENT SAID THREATENED BY NARROWMINDED DEVELOPMENT

## Conservation Group Report

Wellington THE EVENING POST in English 13 Jul 81 p 4

[Text]

Narrow-minded development of New Zealand has ruined or threatens much land, costs us \$100 million annually in lost farm production and puts at risk the very ability of the land to support us in the future, says a report released today.

The report, "Integrating Conservation and Development - A Proposal for a New Zealand Conservation Strategy," concludes that, to secure the future and ensure development can be sustained, the environmental effects of projects should be carefully considered in the early stages of planning.

The 61-page discussion booklet was prepared by a committee of the Nature Conservation Council that included representatives of five government agencies and two conservation groups, and was formally

launched at a function at Parliament today.

The report says: "Careful development of resources can lead to economic growth, improved living standards, employment opportunities and increased wellbeing in the broadest sense. Depletion, destruction and over-exploitation undermine the very means by which New Zealand can survive and flourish."

"Sustainable development will be achieved when conservation is fully integrated with development and the two are no longer viewed as mutually exclusive or opposite ends of a spectrum."

## A danger

It says natural areas such as wetlands, coastal zones and forests had been subjected to widespread development and the changes

represented not only a danger to the animal inhabitants, but also to humans.

It explained that these "life support systems" and the processes they contained sustained all plant and animal life.

"Food, and fibre production, shelter, health and wellbeing and every aspect of human survival and sustainable development depend on them."

While changes to the land had allowed widespread exploitation for farming, three-quarters of that land was now eroding. Construction of buildings and roads on good farm land was costing \$100 million annually in lost potential agricultural production.

The fishing industry had also been affected with uncontrolled exploitation endangering some species and also the future viability of parts of the industry. More than 10 percent of the 340

estuarine systems which supported fish were moderately or grossly polluted.

## Too slow

At the launching of the report today the Minister for the Environment, Dr Ian Shearer, said there was not a fast enough input of environmental considerations into various stages of planning in New Zealand.

He believed that many of the proposals contained in the Nature Conservation Council's conservation strategy should have been implemented "two yesterdays ago."

The strategy served notice that New Zealand had reached a "crunch point" - that sustained development could only be achieved by marrying conservation interests with those of economic growth.

## Development Strategy Goals

Christchurch THE PRESS in English 13 Jul 81 p 16

[Report by Oliver Riddell]

[Text]

Careful development of New Zealand's natural resources can lead to economic

growth, improved living standards, employment opportunities, and increased well-being

for all. Depletion, destruction and over-exploitation of those resources can undermine the

means by which New Zealanders can survive and flourish. Sustainable development will

be achieved only when conservation is fully integrated into development and the two are no longer opposed.

These suppositions are argued in the New Zealand Conservation Strategy, published by the Nature Conservation Council today. The study was prepared following the publication of the World Conservation Strategy in March, 1980. It will be presented to the General Assembly of the IUCN (International Union for the Conservation of Nature and Natural Resources) when it meets in Christchurch in October.

Called "Integrating Conservation and Development," the strategy is a 64-page booklet. It is intended to be read by developers and to this end has taken more account of the interests of developers than many conservationists will like.

The booklet is to be given a wide circulation before the IUCN meeting, and comments on it will be sought. There is a very real chance that it will be ignored by developers, including the Government, once the fanfare of its launching is over.

The booklet deserves a better fate. The strategy attempts to explain the integration of conservation and development, and examines ways in which this may be promoted by those concerned about the country's future.

In particular, it seeks to influence Government policymakers and their advisers; managers of natural resources; farmers, foresters and fishers; species at risk of extinction.

#### [as published]

men, people actively interested in conservation issues; those engaged in planning and programming development, including Government agencies, industry and commerce, and trade unions.

The strategy has five main objects:

1. To protect ecological processes and life support systems (such as freshwater and coastal systems, soil, forest, scrub, and grassland) on which human survival and development depend.

2. To provide for cultural, spiritual and other non-material needs of society by the protection of natural resources and the development of diversity in their use.

3. To preserve genetic diversity (the range of genetic material found in organisms) on which depends the functioning of many life-support systems with commercial, medical and scientific uses.

4. To ensure the sustainable use of the renewable resources (especially fish, forests, pasture and arable lands) on which the New Zealand economy is largely based.

5. To ensure that non-renewable resources are depleted at a rate that enables transition to the use of more abundant materials or of sustainable resources.

The booklet argues that all these aims are a matter of urgency because the resource base of some important industries is shrinking, as well as sometimes being poorly managed. More than three-quarters of New Zealand soils show signs of erosion. More than 30 of the 300 estuary systems which support fisheries are moderately or grossly polluted.

Some living resources are being over-exploited. Rock lobsters, Tasman Bay scallops, Bay of Plenty trevally, Canterbury Bight elephant fish, and Hauraki Gulf snapper are all endangered. There are 531 threatened and endangered

#### [as published]

Less than 10 per cent of the original freshwater wetlands in New Zealand are still unmodified.

The booklet argues that opportunities for spiritual and cultural development are being lost. Accessible open spaces and wild areas near cities and towns are scarce; only remnants of the once widespread lowland native forests remain; natural and wild areas are being lost to hydro and geothermal development.

Failure to conserve resources incurs a high cost,

according to this study. Costs of imported oil continue to rise and a continued supply of imported minerals cannot be guaranteed at an acceptable price.

The main obstacles to achieving conservation are said to be: The belief that resource conservation is limited, rather than a process that cuts across all sectors; the consequent failure to integrate conservation with development; the lack of a capacity to conserve; the failure to recognise the need to plan now for a sustainable yield.

What is called "the lack of a capacity to conserve" is described in the booklet as a result of inadequacies in some legislation and the lack of enforcement, poor organisation (notably a lack of co-ordination between Government agencies), and a basic lack of information on priorities, on the productive and regenerative capacities of living resources, and on the trade-offs between one management option and another. The study determines the priority requirements for achieving each objective, and then proposes major legislative changes to assist this.

The booklet is not a document of doom and gloom. Nor does it give any grounds for complacency. It is intended as a document for study, and carries no Government promises as to its impact or acceptance as a basis for Government action.

## TOTAL HALT TO LOGGING OF NATIVE FORESTS DEMANDED

Auckland THE NEW ZEALAND HERALD in English 22 Jun 81 p 4

[Text]

**Two-thirds of native forests would be kept as reserves untouched by logging, the Minister of Forests, Mr Venn Young, told a seminar at Auckland University.**

The remainder would be logged at a level low enough to sustain the forests.

Mr Young's outline of Government policy on native forests was greeted with cries of "rubbish" from some of the audience of 130 at the seminar, which was organised by the Royal Forest and Bird Protection Society and the Native Forests Action Council.

Hecklers during Mr Young's closing address on Saturday called for a halt to all logging of native forests.

But Mr Young refused to support a complete halt to logging, saying that such a policy would create unemployment.

### Suspended

"We must take the socio-economic effects into account," he said. "There are communities in the central North Island and on the West Coast that rely on the continuation of native forestry for their survival.

"Some areas have paid more than their share towards these policies of forest conservation. We must take account of people's entitle-

ment to stay in jobs they have had all their working lives."

Mr Young assured the audience that logging had and would be suspended in areas where wildlife species were threatened.

After a cry of "Venn Young is the predator," the minister added that the axe or the chainsaw were not as damaging to rare birds as were the stoat or the weasel.

After the seminar, the research director of the Native Forests Action Council, Mr Guy Salmon, said his organisation was not asking for a complete halt to logging, but for a balance of more conservation and less logging.

He suggested that people who lost their jobs because of reduced native logging could be employed on exotic forestry.

He said there were fewer jobs at stake than the minister had implied.

In the management proposals for the King Country forests, the highest logging proposal for Pureora would only be enough to employ four people for three months of the year, he said.

In south Westland there were 35 people employed on native forestry, 30 on milling and five on service jobs. Alternative work for them could be found in nearby processing mills.

### Independent

A motion was passed at the seminar calling for a re-organisation of the Scientific Co-ordinating Committee, formed in 1974 to advise the Minister of Forests on scientific research and the formation of reserves in state forests.

The seminar supported recommendations by Mr Salmon that the committee be made independent of the Forest Service and responsible to the Minister for the Environment rather than to the Minister of Forests.

It agreed that the composition of the committee should be changed to include a majority of conservation experts.

Conservation recommendations and socio-economic considerations should be a public process under the Forests Act, using improved forest management plans.

### Supported

There should also be an independent audit of public submissions on management plans by a body responsible to a minister other than the Minister of Forests.

Recommendations on forest reserves from a review of native forest policy published by the Environmental Council in 1979 were also supported.

The only vote against the motion came from the Forest Service representative at the seminar, Mr K. Myers.

Mr Salmon told the seminar that united councils were out of touch with environmental issues.

He said the growth of conservation awareness in the past 10 years, which had caught the imagination of many young people, had not extended to members of united councils, who were mostly older farmers or retired businessmen.

There was a vast difference, he said, between the enlightened attitude to parks and reserves of bodies such as the Auckland Regional Authority and the attitudes of many united councils.

## LOWER EFFLUENT DISCHARGES FROM PULP, PAPER MILLS SEEN

Christchurch THE PRESS in English 25 Jun 81 p 21

[Text]

PA Wellington

Lower effluent discharges can be expected from an expansion of the pulp and paper industry according to a study made by the Commission for the Environment.

Overseas improvements in pulping technology pointed to considerable opportunities for reducing waste, says the study by a commission researcher, Mr Owen Cox.

The study, made in 1978 and 1979 and expected to be a key paper for the second part of the Forestry Conference in September, reviewed five North Island mills, plus the New Zealand Paper Mills plant at Mātaura.

Mr Cox said improvements in technology ranged from more efficient chemical, energy and water usage, to development of effluent-free mills.

"These overseas developments suggest there are considerable opportunities for lowering effluent discharge in pulp mills, especially future mills," he said.

"New mills, and expan-

sions to existing mills, can be expected to have lower per unit effluent discharges to the environment than existing mill operations."

The study said recent design advances for chemical pulp mills could reduce effluent and pollution to levels from mechanical mills.

Mid-1960s technologies rated effluents from chemical mills at least double the standards for mechanical mills.

Chemical pulping, or kraft technology is used at the N.Z. Forest Products mill at Kinleith, and for almost half of output from the Tasman Pulp and Paper mill at Kawerau.

Mr Cox said recent technical developments had also improved effluent from mechanical pulping.

"However, generation of electricity to meet the higher power demands of mechanical pulping increases the potential off-site environmental impact," he said.

The study said the Kinleith

mill would continue to meet class D water standards for effluent, but warned that further expansion, if coupled with a proportional increase in effluent, would cause serious deterioration to the Waikato River.

The Kawerau mill did not meet all requirements for its discharge rights into class D waters of the Tarawera River, the study said. Colouring was the main problem.

Expansion of the Carter Oji Kakusaku Pan Pacific mill at Whirinaki had reduced water consumption and increased effluent screening.

"Further expansion, particularly into paper-making, may necessitate more external measures to treat effluent, and problems with the bark dump highlight the need for bark to be effectively used and careful selection of the waste dump site," the study said.

It had few criticisms of the N.Z. Forest Products mills at Whakatane and Mātaura.

CSO: 5000/9039

ECOLOGIST, MANUFACTURER ARGUE LEADED GASOLINE ISSUE

Wellington THE EVENING POST in English 22 Jun 81 p 6

[Text]

The Friends of the Earth group wants a government study into substitutes for leaded petrol, but an Australian involved in marketing lead additives believes the cost of such a move would not be justified by the danger posed.

These views come from Mr John Horrocks, a spokesman for the friends, and Mr Peter Foster, Australian manager of Associated Octel.

Associated Octel is a British company manufacturing lead additives, and Mr Horrocks is a leading campaigner against the addition of lead to petrol.

They were in Wellington at the weekend for a conference on lead in petrol.

Mr Horrocks said air pollution levels in Christchurch and a few other New Zealand centres were similar to those measured during a Sydney study, which concluded that high airborne lead levels were connected with child behavioural problems, hyperactivity, and learning difficulties.

He said the Sydney study, carried out by Professor Lloyd Smythe, the head of the analytical chemistry department of the University

of New South Wales, showed alarming levels of lead in the blood of schoolchildren.

He suggested a cost-benefit analysis into the worth of fuels like compressed natural gas and lead-free petrol, which could also look at removing other pollutants.

Mr Foster agreed that high lead levels in the environment endangered health, but said the amount contributed by exhaust emissions was so minimal as to make it uneconomic to reduce the lead content of petrol, or replace petrol altogether.

Where high lead levels had been found to be affecting health, the source was usually found to be paint and water pipes, he said.

He agreed the environment would be cleaner without lead from petrol, but said it would be only marginally so.

There were other sources of lead which should be eliminated first, he said.

Taking the lead out of petrol would create big costs for the country with higher petrol consumption, modifications to the refinery and to vehicles — costs which he said could not be justified by the low risk to health leaded petrol posed.

NEW APPROACH TO SOLVING POLLUTION OF BOHAI BAY

Tianjin TIANJIN RIBAO in Chinese 9 Jun 81 p 1

[Article: "Taking a New Look at Pollution in Bohai Bay"]

[Text] The Chinese Academy of Sciences and scientists in Tianjin have proposed new views on pollution in Bohai Bay. They believe that the major problem Bohai Bay now faces is the pollution of organic matter such as nitrogen and phosphorus. Because the great input of nutrients causes algae to multiply excessively, the amount of oxygen in the water is reduced and the conditions in which fish can live are deteriorating.

This new viewpoint was advanced at the recent work conference on environmental protection scientific research held in Tianjin. It differs from previous viewpoints. In the past it was believed that the pollution of Bohai Bay and the diminution of aquatic product resources were caused mainly by the dumping of petroleum and heavy metals, principally mercury. Therefore, the state has spent a great amount of money in the past several years to control these pollutants, and has obtained some results in protecting the environment of Bohai Bay. However, nitric and phosphoric organic pollutants did not receive widespread attention at that time. In August 1977, a "red tide" phenomenon occurred in Bohai Bay; the water surface over a 560-square-kilometer area turned dark red, and many dead fish floated on the water. The seawater gradually returned to normal after 20 days. According to investigations, the redness of the seawater was caused by the heightened multiplication of microscopic algae due to the great increase of organic matter such as nitrogen and phosphorus in the seawater, plus favorable conditions of temperature and wind direction. Since then, people have begun to pay more attention to pollution by nitric and phosphoric organic matter.

In order to provide a scientific basis for the environmental protection of Bohai Bay and the entire city of Tianjin, the Science Committee and the Environmental Protection Bureau of Tianjin City have organized relevant departments in Tianjin and have collaborated with 18 institutes of the Chinese Academy of Sciences, under the leadership of the Environmental Protection Office of the State Council and with the enthusiastic assistance of the Chinese Academy of Sciences. Beginning in April 1978, they have carried out a complete investigation and evaluation of the natural environment of Bohai Bay and Tianjin City. This is a large-scale, broad-range, integrated environmental study with definitive objectives and complete scientific disciplines.

In the past 3 years, the scientists have made a general investigation and an integrated evaluation of the species, quantity, mode, and characteristics of the major pollutants entering Bohai Bay, the distribution and transformation characteristics of pollutants in seawater, substrate, and biological bodies, and the effects on marine biology, aquatic product resources, and human health. They have also studied the self-purification ability of Bohai Bay and have obtained a great amount of valuable data and information. The results of their investigation show that pollution by nitric and phosphoric organic matter in Bohai Bay is an outstanding problem at this time. Petroleum pollution in local areas poses a potential threat, and as the development of petroleum resources and shipping business progresses, the danger tends to increase. Pollution by heavy metals was not found to be a major problem. In the meantime, the scientists have also suggested that the self-purification ability of Bohai Bay should be fully utilized as an important aspect of the integrated prevention of pollution in the bay.

In addition, the scientists have made a complete investigation and analysis of the pollution conditions of air, soil, surface water and ground water in Tianjin city and the transfer and transformation of the major pollutants. They also have collected systematic data on urban noise, flow rates of vehicles and pedestrians, building and population density, green areas in the city, and the correlation between environmental and human health conditions. An encouraging step has been made toward a general evaluation of the city's natural and social environment.

9698

CSO: 5000/4082

UNEMPLOYED YOUTHS ORGANIZED TO FIGHT 'THREE WASTES'

[Beijing RENMIN RIBAO in Chinese 19 Jun 81 p 2]

[Article by Research Institute of Qiqihar Municipal CCP Committee: "Retired Couple in Qiqihar Municipality Organize Unemployed Youths to Make Three-Waste Purification Plant With Self-Raised Funds"]

[Text] Editor's note: A couple of retired workers, Song Chonghan [1345 1504 3352] and Ouyang Huiying [2962 7122 1920 5391], have organized several unemployed youths to form a three-waste purification plant with self-raised funds. This practice should be encouraged. In this way, retired and unoccupied technicians can still play a useful role, not only creating material social wealth and reducing environmental pollution, but also providing jobs for unemployed youths. This means "killing several birds with one stone." The authorities concerned should support and promote such a practice, since it is beneficial to both the state and the people.

The Three-Waste Purification Plant in Tiefeng District of Qiqihar municipality, Heilongjiang Province, was formed with self-raised funds and staffed by several unemployed youths organized by retired worker Song Chonghan and his wife Ouyang Huiying, who had also retired for health reasons. The main task of the plant is to recover waste oil, waste liquid and waste residues, to be reused after purification, as a service to the state and the society. This plant has already gained heartening results since its inception.

Song Chonghan and his wife were originally graduates and postgraduate students of Zhejiang University in chemistry. After their retirement, they could not bear the sight of huge quantities of waste oil, waste liquid and waste residues being simply discarded and causing environmental pollution. At the same time, they knew that many youths were unemployed and that they could not be given jobs for some time. Therefore, they decided to build a plant for the recovery of the three wastes. This plant would provide an opportunity for them to make use of their own technical skill as a contribution to the state as well as to organize the unemployed youths to learn technology and to earn their living. In June and July 1980, this couple raised some 3,000 yuan through their own efforts to buy equipment and material, and organized five unemployed youths from their own family and the families of their relatives and friends to work in two small houses loaned by

friends. This plant formally began operation in September after obtaining approval from the departments concerned.

The plant mainly produced four different products through recycling of wastes: First, high-density glacial acetic acid extracted from discarded acetic acid. Glacial acetic acid is an industrial-chemical material. Within 1 month, or, to be more exact, from the last 10 days of March to the first 10 days of April, this plant extracted 3 tons of high-density glacial acetic acid from the discarded materials of a pharmaceutical plant in the municipality. It has also signed a contract for the sale of 30 tons of this product with an industrial supply and marketing company in Yuhang County, Zhejiang. Second, silver retrieved from photo studios' discarded fixing fluid. Since last October, this plant has collected discarded fixing fluid from 30 photo studios, printing houses and hospitals, and after certain chemical treatment, extracted some 100 jin of semi-finished materials, which, after further processing, yielded some 20 jin of pure silver. Third, recycled machine oil, axle oil and so forth from discarded oil. The residues after recycling can be made into other products. Fourth, products made from discarded battery cells.

The small plant scrupulously observes laws and disciplines, and does not engage in speculation or profiteering. It never cheats the customers, does business in a fair and reasonable way, and has paid all taxes according to rules and regulations. At present, each of the seven workers draws 45 yuan against their wages pending the setting up of a regular pay scale according to their individual technical skill and attitude toward work. The net profit will be disposed of as follows: 40 percent for expanded reproduction; 30 percent as bonus funds, and 30 percent to be distributed after discussion and according to individual contributions to the plant's success. By linking the personal benefits of individual workers to the quality of business operation, this plant is now operating in good order and all revenues and expenditures are clearly recorded. All the workers regard the plant as their home, are not afraid of hard work, and are full of enthusiasm. They are also taking active measures to form links with other plants that are operating under capacity so as to increase their productivity capacity and expand the scope of their work in recovering wastes. This will also provide further job opportunities for unemployed youths.

9411

CSO: 5000/4084

NEW COPPER SMELTING METHOD REDUCES POLLUTION, FUEL USE

Beijing GUANGMING RIBAO in Chinese 5 Jul 81 p 2

[Article by GUANGMING RIBAO correspondent Wu Weizhen [2976 1218 2182]: "China Discovered Copper Smelting Method Requiring Low Energy Consumption and Reducing Pollution"]

[Text] For copper smelting, China has discovered an advanced method which requires only low energy consumption and causes little pollution. This new method was the result of 8 years' joint research by the Baiyin Nonferrous Company and six other units. The research was successfully completed in 1980, and with the approval of the State Scientific and Technological Commission, a second-class citation for invention was given in May 1981. This new copper smelting method is now named "Baiyin Copper Smelting Method." The special technical feature of this method is that through the action of a bellow in the smelting furnace, the liquid is violently stirred up, thus facilitating inter-reaction among the gaseous, liquid and solid substances inside. This helps speed up the transmission of heat, improves quality, and strengthens the entire smelting process.

By this method, the smelting gas can be recovered and made into acid. There are also other advantages, such as reduced environmental pollution and fuel consumption, a shorter technical process, and less investment. This method can be used with only coal dust as fuel, thus overcoming the defect of exclusive reliance on heavy oil and conforming to the state's energy policy.

In August 1980, the smelting plant of Baiyin Nonferrous Metal Company began the use of this new smelting technology. According to statistics compiled during the inspection and repair of the furnace by the end of 1980, some 16,000 tons of coal was saved after 149 days' continuous production. From the recovered gas, the production of sulphuric acid was increased by 12,500 tons, and 240 tons of magnesia bricks were saved. Some 7,000 tons of steam was also produced. Thanks to the use of residual heat, the value of the above items totaled nearly 400,000 yuan.

9411

CSO: 5000/4084

USE OF MICROORGANISMS IN SEWAGE TREATMENT SURVEYED

Beijing XIANDAIHUA [MODERNIZATION] in Chinese Vol 3, No 6, 16 Jun 81 pp 14-16

[Article by Lan Tian [5663 1131]: "Microorganisms Purify Sewage"]

[Text] The Perplexing Problems Posed by Sewage

The pollution of our country's water resources has already attracted the concern of the party and government. Preliminary surveys of 30 major rivers and lakes in the country have been made in recent years. They found that the Songhua No 2 River, the Liao River, the Grand Canal between Suzhou and Nanjing, the Huangpu River and the Pearl River have been seriously polluted, primarily by the discharging of untreated sewage into them. Shanghai, this country's greatest industrial city, discharges 2.8 million tons of sewage every day, of which more than 2 million tons goes directly into the river, while Suzhou's rivers are almost entirely sewage within the city limits. In the dry season, the Huangpu River is one-third sewage. In 1978-1979 the river water had a foul smell for more than 100 days. Because of the poor quality of drinking water, large quantities of chlorine are generally used to disinfect it, but this may also result in the formation of carcinogenic organic chlorine compounds. Currently, more than 80 million tons of sewage of all kinds is discharged throughout the country, and more than 90 percent of urban sewage is discharged into water sources without treatment.

The harm done to the public by sewage is shocking. Industrial wastewater, which accounts for about half of the sewage we discharge, contains various wastes from the manufacture of chemicals and agricultural pesticides; pollution by heavy metals is a particular cause for concern. In 1978, sewage was used to irrigate almost 5 million mu of land, and in a certain part of Shenyang Prefecture the cadmium content of rice actually reached the serious pollution level of 2.6 parts per million (rice containing more than 1 ppm of cadmium is called cadmium-containing rice and may not be used for human consumption). In 1974, more than 400,000 mu of wheat fields in Tianjin Prefecture were irrigated with wastewater containing chloral, and more than 200,000 mu of the wheat was not harvested.

In Japan, as industry has modernized, water pollution has brought the Japanese people misfortune and worry. According to incomplete statistics, in the 1960's as much as 180,000 hectares of agricultural land throughout the country was polluted by sewage, and 300,000 agricultural households were affected. Hokkaido is an important fishery area for Japan, but discharge of large quantities of industrial wastewater polluted the sea, so that large numbers of fish, shrimp and other marine animals were killed and catches dropped sharply, in addition to which many marine products were inedible because they gave off a strong stench.

On one occasion it was discovered that coastal residents of Kumamoto Prefecture in Japan were suffering from a disease of the nervous system which came to be called "Minamata disease"; ultimately it was found to be caused by consumption of marine fish and crustaceans contaminated by methyl mercury. As many as 170 persons suffered from the illness, of whom 57 died. In addition, in a certain area of Japan, the inhabitants who regularly ate agricultural crops irrigated with cadmium-containing wastewater developed osteopsathyrosis, colloquially called the "aching disease." More than 200 persons were affected, and 118 of them died. Thus the question of how to purify sewage so as to decrease the harm done to people is already an urgent one.

#### Use of Microorganisms To Purify Sewage

Current approaches to sewage purification include physical, chemical and microbiological methods. Physical and chemical purification methods have rather high costs, and they entail the risk that new, harmful substances will be produced, resulting in "secondary pollution." These shortcomings can be avoided by microbiological water purification. Accordingly, the use of microorganisms to purify water has already become a topic for energetic research and an extensively used treatment technique throughout the world.

The conversion activity of microorganisms is part of their growth and metabolism and is capable of removing various organic substances and toxic materials from sewage. Both aerobic and anerobic microorganisms can take part in water purification, so that both aerobic and anerobic treatments have developed. The aerobic methods include soil irrigation methods, biological film methods (including the biological filtering method and the biological rotating disk method, the activated sludge method and the biological oxidation pond method. The anerobic digestion (or methane fermentation) method, is the most important anerobic method.

Figure 1 is an idealized diagram of the sewage purification process. When suitable types of aerobic bacteria are introduced into organic sewage, they purify the sewage by using dissolved oxygen to transform organic substances in the sewage, in order to obtain energy while they continuously produce bacterial reproductive cells.

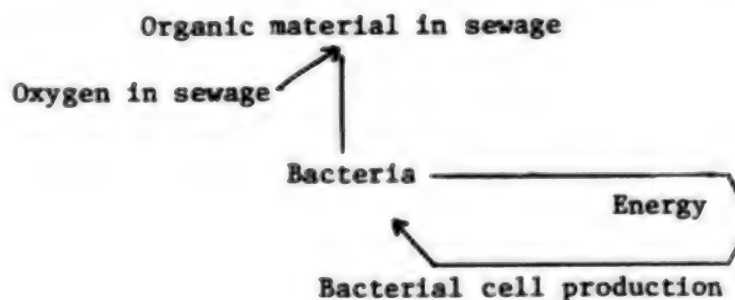


Figure 1. Pollution Purification Process

## The Simple, Convenient Soil Irrigation Method

The so-called soil irrigation method uses various soil microorganisms in the purification process.

Recently the soil irrigation method has been divided into two main approaches, the filtering irrigation method and the surface irrigation method. In the filtering irrigation method (Figure 2a), the sewage is applied to the soil 0.3 to 0.6 meters deep, after which it gradually filters into a soil layer 1 meter or more thick, and drainage pipes laid at the bottom collect the filtered water and carry it off. In the surface irrigation method, the sewage flows down a slope from a ditch at the top, as shown in Figure 2b, and the water is collected in a channel at the bottom of the slope, then subjected to a second irrigation treatment. Although sewage purification by the irrigation method results from the action of a complex of factors, the main microorganisms involved in it are bacteria, actinomycetes, fungi, algae and protozoa which live in the soil and carry out effective purification. Nitrite bacilli and digestive bacilli have an important role in converting nitrogen-containing compounds to harmless substances. At present, some highly modernized cities and countries (for instance Berlin and Paris) still use the soil irrigation method for purification.

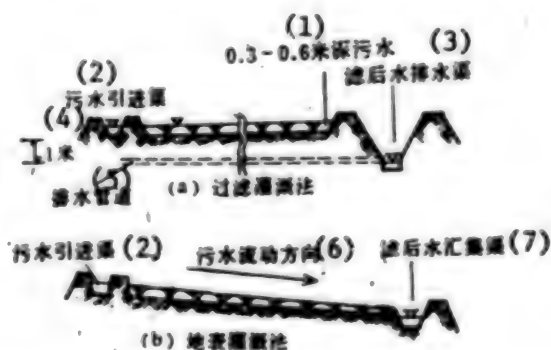


Figure 2. (a) Filtration irrigation method; (b) Surface irrigation method.

### Key:

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| (1) 0.3-0.6 meter deep sewage     | (4) 1 meter                          |
| (2) Sewage inlet ditch            | (5) Drainage pipes                   |
| (3) Filtered water drainage ditch | (6) Direction of sewage flow         |
|                                   | (7) Filtered sewage collection ditch |

## The Biological Filtering Method

Biological filtration systems essentially consist of an initial settling tank, a biological filter, and a final settling tank (see Figure 3a). The biological filtering tank is the key component of biological filtration purification of sewage. The sewage to be treated is piped in, sprinkled over the filter

material by rotating distributor, and after filtering is removed by another pipeline (see Figure 3b). In the biological filtration tank the various microorganisms busily convert the pollutants to harmless materials. According to their distribution, the microorganisms in the filtration tank are classified as biological film organisms, organisms living on the biological film surface, filter tank cleaning organisms and so on. The biological films consist primarily of bacteria and certain filiform organisms which attach themselves to the filter material in the form of a thin film. In urban sewage treatment plants the film in biological filters is generally 2 to 3 mm thick. When organic pollutants in the sewage come in contact with the surface of the biological film, they are acted on by enzymes produced by the microorganisms in the film and are broken down and eliminated. Substances which are difficult to break down are made harmless by being decomposed by filter tank cleaning organisms. If the organisms on the surface of the biological film grow rapidly, they greatly increase the purification rate over that achieved by the biological film alone, thus increasing the treatment of efficiency of the filter tank as a whole.

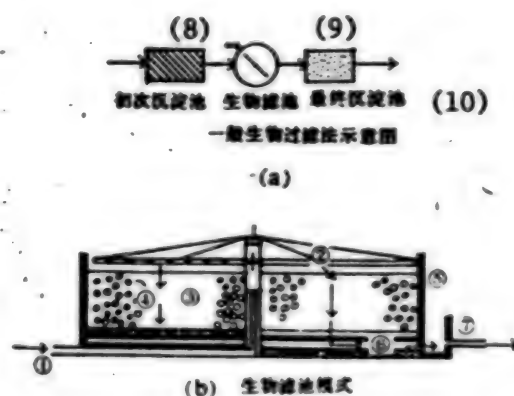


Figure 3. The Biological Filtration Method

(a) General biological filtration method

(b) Biological filtration tank

Key:

- |                              |                                |
|------------------------------|--------------------------------|
| (1) Water inlet              | (6) Percolation equipment      |
| (2) Rotary water distributor | (7) Filtered water             |
| (3) Filter layer             | (8) Initial settling tank      |
| (4) Filter material          | (9) Biological filtration tank |
| (5) Tank wall                | (10) Final settling tank       |

Biological filtering appeared at about the end of the 19th century, and was extensively used in the 1930's, with an increase of about 30 percent in the purification capability. In present-day Japan, biological filtration is mainly used in the reprocessing of urban blackwater following digestion.

### The Ingenious Biological Disk Method

For small-scale sewage purification, the biological disk method is best. In essence, it involves slow rotation of disks to make an attached biological film come successively in contact with sewage and air, resulting in purification of the sewage. The biological disk equipment consists of a sewage tank and many parallel thin disks supported by a horizontal axle. Some 40 to 50 percent of the disk surface is submerged in the sewage in the tank, while the rest is above water. The disks are rotated at slow speed. The capacity of the semicylindrical sewage tank (Figure 4) depends on the specific situation. The disks are made of a hard, light material such as aluminum, plastic or synthetic resin. The radius of the disk depends on the amount of water to be treated, and generally ranges from 1 to 3 meters, while the thickness is from 1.2 to 1.5 cm (see Figure 4b). Stuttgart Germany is the "home" of the rotating disk method, for the first rotating disk experiments were conducted there. Subsequently, following continual research and improvement, it has come into use in many countries. Some hospitals in this country use the disk method to treat hospital sewage, which is then disinfected with chlorine, producing excellent results. The rotating disk method has the advantages of simplicity of operation, low power consumption, small space requirements and the like.

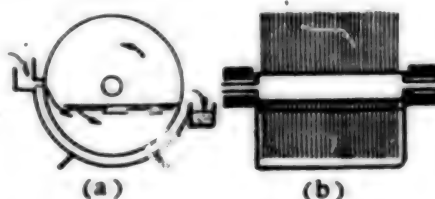


Figure 4. The Biological Rotating Disk Method

### Gratifying Results From the Biological Oxidation Pond Method

Since 1961, as chemical engineering plants have sprung up in large numbers around Yar Lake in Hubei, large quantities of untreated wastewater containing a wide variety of highly toxic agricultural pesticides have been discharged into the lake, seriously polluting it. This country's relevant scientific workers used the biological oxidation pond method for the first time in this country to successfully control pollution in the Yar Lake water system. They built embankments in one of Yar Lake's tributary lakes, Yanjia Lake, in order to create ponds, then built flow-retarding dams, producing five multistage sequential oxidation pond systems with a total area of 6,000 mu to treat the wastewater. The pollution belt, which previously had been 7 km long, was confined within the oxidation ponds, and the combined work of algae and bacteria decomposed poisonous substances in the water, thoroughly purifying it. After treatment, the Yar Lake system recovered its "youth," the ecosystem returned to normal, and the drinking water for the 300,000 lakeshore residents and the irrigation water for 400,000 mu of farmland were safeguarded. The use of the biological oxidation ponds in

this country achieves the objective of comprehensive utilization and conversion of harmful things into beneficial ones, opening a new approach to the control of agricultural pesticide pollution in this country.

At present, 39 countries worldwide are making extensive use of oxidation ponds to treat domestic sewage and industrial wastewater. In the United States there were 631 biological oxidation ponds in the late 1950's; by the early 1960's the number had increased to over 3,500, and it jumped sharply to 4,888 by 1970, accounting for one-third of municipal sewage treatment in the United States. In Germany, fish can even be raised in a properly managed oxidation pond, yielding 500 kg of fish per hectare of pond surface.

#### Killing Two Birds With One Stone by the Digestion Treatment Method

In their life processes, some anerobic organisms can convert a variety of organic compounds to methane and carbon dioxide. Such phenomena were first discovered in nature by Woerta [phonetic] in 1778. Subsequently they were used for purifying sewage, receiving the name of digestion treatment of methane fermentation (Figure 5). The water is first pretreated in a grit tank to remove insolubles, then purified in the digestion tank, and the methane and other gases produced are stored in storage tanks. This sewage purification method consists of two main stages: liquefaction and gasification. In the liquefaction stage, various organic substances in the sewage are decomposed by the microorganisms' extra-cellular enzymes into sugars and amino acids, after which these conversion products are made into short-chain fatty acids by the intracellular enzymes. Such types as clostridium, Bacillus, Staphylococcus, Pseudomonas, Proteus and the like play an active role in the liquefaction stage. In the gasification stage, 10 or more kinds of methane bacteria decompose the products of the liquefaction stage into methane, carbon dioxide and the like. In the digestion treatment of sewage, high temperature fermentation (usually at 51-53°C) is frequently used in the digestion tanks (such as digestion tanks Nos 5 and 6 in Figure 6); under identical conditions, high temperature fermentation can treat four to five times as much organic material and produce four to five times as much methane and other gases as in moderate temperature fermentation.

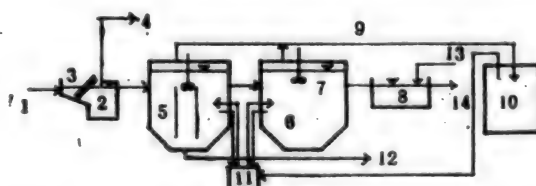


Figure 5. Digestion Treatment Method

#### Key:

- |                             |  |
|-----------------------------|--|
| (1) Input sewage and sludge | (8) Dilution tank                      |
| (2) Grit tank               | (9) Digestion gas                      |
| (3) Screen                  | (10) Storage tank                      |
| (4) Residue from screen     | (11) Heat exchanger                    |
| (5) First digestion tank    | (12) To sludge treatment equipment     |
| (6) Second digestion tank   | (13) Dilution water                    |
| (7) Mixer                   | (14) To secondary processing equipment |

Judging by investigation and use worldwide, the digestion method is well suited for purifying sewage with a high organic content. Many countries use this method to treat residual liquor from alcohol plant distillation processes, yeast-containing wastewater, ammonia-production wastewater and production wastewater from food processing, production of antibiotics and the like, achieving maximum purification effects of 90 percent.

The digestion treatment method has many advantages. The equipment required is simple, since the facility consists primarily of a digestion tank and a storage tank. This method not only purifies sewage, but also recovers large quantities of methane gas which is usable as a fuel, thus saving on expenditures and decreasing the cost of sewage purification, so that it produces a double benefit.

Recently, some foreign scientists have unexpectedly discovered in sea water many varieties of bacteria and other microorganisms which can eat oil pollutants on the sea surface. Geneticists hope to concentrate their various food preferences in a single type of microorganism, i.e. to create a superbacterium which can play a greater role in environmental protection. It may be predicted that microorganisms will come to show their mettle in mankind's struggle against sewage.

8480

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PEOPLE'S REPUBLIC OF CHINA

BRIEFS

GUANGDONG ECOLOGY FORUM--A large-scale scientific forum on ecology was held in Guangzhou for the first time from 24 to 28 June. More than 180 scientists and scientific-technological personnel attended the provincial forum during which 87 papers were read and the Guangdong Provincial Ecology Society was formed. Guangdong mayor Liu Tianfu was invited to become honorary president of the society. [OW101439 Beijing Domestic Service in Mandarin 0900 GMT 6 Jul 81 OW]

ENVIRONMENTAL MEDICAL SCIENCE CONFERENCE--Jinan, 18 Jun (XINHUA)--The first national conference for academic exchange in environmental medical science, jointly sponsored by the Chinese Environmental Sciences Society and the Chinese Medical Society, was held in Taian, Shandong, 9-12 June. The conference decided that in future, scientific research should focus on the effects of environmental pollution to human health. In the past year and more, scientific researchers in related fields have coordinated their efforts and scored numerous achievements in the research of medical science. The conference received 156 theses that dealt with methodology, interdisciplinary study, atmosphere, water, noise as well as the effects of heavy metals, carcinogen, farm chemicals and other pollutants on human health. [Beijing XINHUA Domestic Service in Chinese 0763 GMT 18 Jun 81 OW]

CSO: 5000/4086

## ONE-THIRD OF FORESTS ENDANGERED BY POLLUTION

Prague ZEMEDELSKE NOVINY in Czech supplement NAS DOMOV 3 Jul 81 pp 8, 9

[Article by Olga Sumberova: "Forest Renewal"]

[Text] Prof Miroslav Vyskot is a witty, gregarious individual who is highly sought out as a social companion. Destiny once steered him among scientists who were as far removed from his specialty, forest cultivation, as he was from their chemical laboratory retorts. He listened with interest to laments that the source of gin and pine brandy would soon dry out in our forests because the number of juniper trees was slowly but surely decreasing, and foreign exporters had found better markets for their aromatic berries.

The professor is not a lover of alcohol but this information caught his attention. A shortage of the necessary oils could cause difficulties not only in the manufacture of liquors but also in other types of production. How could this be prevented? The aroma of pine needles is plentiful in the forest. Can it be captured and stored somehow?

#### Replace Juniper Berries with the Oil Proper

The head of the forest cultivation chair of the forestry faculty at the Higher School of Agriculture in Brno, Prof Miroslav Vyskot, corresponding member of the Czechoslovak Academy of Sciences, called on workers in the chemical sciences for help. Together with Jiri Uher from the Higher School of Chemical Technology in Prague, they carried out an experiment. They removed the needles from 5 tons of freshly hewn spruce. They then ground up and distilled the needles. Following the trusty recipe of our grandfathers--and with the aid of modern technology, they arrived at the desired result, namely, beautifully aromatic oil.

The approaching calamity for the liqueur industry was thus averted. The two scientists probed further to determine to what other uses the extract might be put. Foremost, for the manufacture of medicaments, but also for perfuming soaps and detergents, for dyes and varnishes. The essential oil, however, was not the only product of the distillation process. The pine needles also yielded wax which is useful in chemical technology. Moreover, the redistilled water in which the needles were leached, will provide a welcome raw material for the perfume industry.

The softened, scalded needles, freed of oil and wax, remained in the distillation vessels. The workers who participated in the distillation process, took the macerated needles and fed them to their herbivorous animals. Professor Vyskot found that cattle reacted very well to this unusual form of fodder. This then was a splendid idea, since the needles also possess nutritive value.

#### Low Cost Fodder

Contemporary scientific discoveries and inventions are not the chance accomplishment of individuals, but the crowning achievement of team work. Even in this case, the exception proved the rule, an exception, of course, preceded by long, purposeful labor.

Professor Vyskot, a forestry manager body and soul, was never reconciled with the terrible waste of the precious forest biomass. How much of it is destroyed in the handling of scrub? No one wants the thin trunks of young trees, they are burned with their branches as useless waste, or they remain in the forest as food for all kinds of pests. And this involves large quantities--the preclearing timber harvest in Czechoslovakia represents a third of the overall annual yield. How much work it takes to produce a tree from seed, and then a third of the production goes to waste. Even our republic which has 4.5 million hectares of forests, which in Europe puts it in second place in forestry assets behind Switzerland, cannot afford such luxury.

The utilization of pine needles for fodder is not a new concept. All efforts, however, have encountered the problem that this mixture is difficult to digest. The pine oil irritates the digestive tract of animals, consequently, the powder produced from it is used only up to 3 percent in fodder as a vitamin and dietetic additive. Something else altogether, however, are pine needles which, in the course of the distillation process, were softened and freed of oil and wax.

As was demonstrated in additional tests in cooperation with the Animal Feeding Research Institute and the Animal Physiology Research Institute, the pine-needle distillate has the same nutritious value as lucerne and, when fresh, can be served as a warm drink, but can also be dried and granulated. Production of such fodder will not overburden the energy supply of agricultural enterprises, since brown branch and twig chips can be used to produce the heat needed for the distillation process.

From 1 ton of pine needles it is possible to gain a ton of liquid fodder and 3 to 5 kilograms of oil (1 kilogram costs up to 500 hard-currency korunas) which will pay for the required labor many times.

Professor Vyskot and Jiri Uher's patented discovery has been applied since June of this year in the JZD/Unified Agricultural Cooperative/ Jilov near Prague, where for several years now pine needles have been processed for vitamin-rich powder. The discovery has previously been tested by the Military Forests and Farms in Lipnik nad Bečvou. Additional application is planned in the forest cultivation enterprise of the Agricultural College in Brno and in Sliesovce in Slovakia.

#### Waste or Valuable Raw Material?

Professor Vyskot, since May of this year Laureate of the Klement Gottwald State Prize, has for 30 years dealt with the problems of primary production of forest

biomass. Pine needles are only a small portion, a much more valuable raw material with an infinitely broader scale of application is the timber proper, which we have not yet learned to manage wisely.

With an average annual harvest of about 20 million cubic meters of trunk timber with bark, there remain in the forest about 7 million cubic meters of so-called tree waste, i.e., branches, tree tops, and bark which in the past served at least for home heating. Today, however, we get rid of it all as undesirable ballast. Fire, forest parasites and pests and decay consume about one-third of the annual production, even though this material could be used where it would greatly benefit the national economy. This is no Utopia. Professor Vyskot has over long years amassed a wealth of information on the development of forest biomass utilization, on what processing technology had already been achieved, and in which countries it is being applied.

Woodchip boards, clustered materials, and paper from timber waste, are not new even in our country; however, we must develop this type of production on a much broader scale. Wood as a replacement for gasoline and heating gas has been used successfully as far back as World War II. Now we have available more perfected methods. Through methane fermentation, it is possible to use wood to obtain biogas, methane, and wood alcohol fuel. Through chemical and enzymatic hydrolysis we can also produce ethyl alcohol.

Every elementary school pupil knows the importance of each ton of crude oil for the republic, and how hard and expensive it is to purchase it on world markets. However, not only those who prepare the class curriculum but the public as well may not be fully aware that a ton of crude oil can be replaced by 6.25 tons of wood, and that from 1 ton of wood it is possible to produce 100 liters of 120-octane ethyl alcohol. In other words, 6.25 tons of wood equals 4 or 5 100-year-old spruces, while one good-size spruce yields over a cubic meter of raw timber. Nowhere is it decreed that to produce wood or ethyl alcohol we must use only beautiful, healthy trees. In all probability, brown chips, i.e., tree waste would be enough.

It is no secret to anyone that we export even unprocessed lumber and for the acquired hard currency we in turn purchase fodder for our farm animals. At the same time, wood yields molasses with high sugar content from which it is possible to manufacture fodder mixtures, as well as fodder yeast.

What else can be wrested from wood? Such valuable materials as lignin, vanilin, furfural and fertilizer made from tree bark. All these processes have already been mastered by science, it is only a question of applying them in practice.

Forest biomass can be fully utilized without any waste, we can process it into highly useful and needed quality products. What's more, this can be done through technology using its own energy sources.

#### Obstacles Which Must Be Overcome

Professor Vyskot reminds us that during the Great Patriotic War when the fascists stood before Moscow, even the most expensive tank was cheap when it became a matter of saving the fatherland.

We should not consider it an exaggeration when a scientist of world renown speaks in the same manner of the need for more effective forest protection, and of concentrating all efforts and means toward the elimination of harmful industrial emissions which already threaten over 800,000 hectares of our forests. It is extremely urgent to resolve the problem of separating the sulphur from coal incineration and adopting industrial technology accordingly. The untenable deterioration of our living environment truly dictates such a course.

Direct damage caused by emissions represents an annual incremental loss of 800,000 cubic meters of timber worth about 350 million korunas and indirect damage of 1.5 billion korunas. Pollution not only destroys the scrub in the Krusne and Jizerske mountains, but is also spreading into the Krkonose Mountains, as well as the Orlické and Bezkydy highlands. In 10 years this menace will threaten a third of all the forested areas in the CSSR. It is certainly correct to replace the delicate spruce with hardier timber, however, we must remember that no tree is totally immune against perpetual emissions, acid rain, and poisons with which these substances impregnate the soil. Unless we succeed in quickly and radically reducing the noxious materials, the forest scrub in our border highlands will be devastated and destroyed by the end of this century.

The forest represents not only timber which is so extremely useful. Damage due to industrial emissions means great production losses which are even greater when we add the harm done to the effects of the forests on water management, on the soil, climate and on our health. If we lose the forest, we also lose water, and erosion will wash or blow away the topsoil. No life is possible without water and soil.

At a time when almost all countries are envious of our forestry treasure, when renewal of timber assets is in the fore, and science offers more and more new discoveries with respect to their utilization, it would be an unforgivable sin to waste the forests and their products. Professor Vyskot maintains that indifference is one of the worst human traits. We have no right to be indifferent to our destiny because not only our grandchildren and children but we ourselves would already reap a bitter harvest of irrationality and carelessness toward nature. Let us be wise managers and utilize thoughtfully that which we possess. Let us enjoy and multiply the riches of the forest.

9496

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## SEVERE WATER POLLUTION PROBLEMS DISCUSSED

## Port Water Pollution

Szczecin KURIER SZCZECINSKI in Polish 9 Jun 81 pp 4-5

[Article by Edward Wituszynski; portions within slantlines printed in boldface]

[Text] Environmental pollution, in this case water pollution, is the price that has to be paid for industrial development and the development of civilization. Arresting and eliminating these processes is extremely costly, and we do not always have the means at our disposal for necessary action. Water pollution control in the Baltic Sea is the subject of the Helsinki Conference, which Poland ratified. Because Poland initiated that agreement, the protection of sea and port waters leaves much to be desired here, especially when such legal (responsibility for pollution and degree of penalties) and technical aspects come into play.

The firm responsible for "cleaning up" the port waters at Szczecin and Swinoujscie cleaning storage tanks and cargo holds; collecting odds and ends from cargoes and washings, ballast and bilge waters; removing the effects of oil overflows and collecting garbage from galley ships and luxury liners is the State Firm for Sea Services, "Ship-Service," which functions within the organization, Szczecin-Swinoujscie Port Group. For clarity, let's add that "Ship-Service" also is credited with such services as maintenance and painting of ships during their docking, cleaning of the ships' boilers, platform and ladder inspection, and delivery to the ships of lubricating oils from foreign companies and of drinking water, small articles of freight and wine. With regard to the latter, this firm is the only supplier of wine in barrels on the Polish coast, and it has at its disposal a special base with a capacity of 2.8 million tons.

/"On an annual basis, we collect 50,000-60,000 tons of pollutants, of which half is oil-related,"/ states "Ship-Service's" director, Jerzy Domiszczak. /"Nevertheless, it is our opinion that despite the fact that washing and throwing of bilge water and garbage into the sea and sea areas is punishable and strictly prohibited, 30-40 percent of the pollutants ends up in the water."/

In order to combat oil-related pollutants in the sea areas, "Ship-Service" has three self-propelled, automatic, swimming oil collectors, which are popularly called "catchers." One of them works in Szczecin and two in Swinoujscie, systema-

tically for 8 hours every day. An accidental overflow of oil can occur on any ship. In those circumstances—and it is crucial to act quickly through use of appropriate technical measures to reduce potential damage from oil overflows—a special emergency unit is ready 24 hours a day both in Szczecin and Swinoujscie. The unit has the use of oil barriers (together 1,200 mb), oil collectors, tugboats and aggregates for washing the wharfs and the ships' sides, as well as the absorbent agent "Karax." The absorbent agent is used where the "catchers" cannot go. Furthermore, a barge-tanker of 100 tons' capacity is in constant readiness, as well as independent, English-produced oil collectors. During the transfer of oil products in Swinoujscie, a so-called escort is maintained, with technical measures ready for use on a moment's notice.

For the collection of ballast and bilge waters, "Ship-Service" has the use of specially adapted barges and connecting tankers ("Turbacz"), as well as tank trucks. Yes, the collection of pollutants can take place both in the water and on the land. The firm also possesses a swimming treatment plant for ballast water ("Tarnica"), on which the device "Fram" is mounted. All of the collected water passes through this treatment plant, which brings about a high degree of cleanliness. The purchase of a second, similar, special unit is anticipated.

As we have mentioned, collected items include dry pollutants (i.e., sweepings), residues left from the washing of holds and garbage from ships. The residues left from the washing of holds were supposed to have been dumped at the industrial refuse dump in Soluje. The firm even allotted 11 million zlotys for the right to participate in the investment. A geological survey of the area revealed that these residues could not be dumped there, and also the municipal waste treatment plant could not accept them. As a result, the residues are dumped into silting fields.

/"The collection of garbage from ships is going pretty well,"/ says director Domiszcak. /"The Maritime Office checks to determine whether the ships have complied. The ships' garbage is packed in plastic bags, which our trucks haul away. On the other hand, we cannot collect sanitary waste, although we would like to do it, because we have waste-removal trucks. We have a barge for feces. However, both the trucks and the barge do not have anywhere to put the stuff. RPWK does not want to accept it, citing sanitary and epidemiological regulations. The waste treatment plants are overloaded. A similar situation exists in Swinoujscie. Thus, the ships throw it into the sea water."/

A deserving note is that the processing of 30,000 tons of oil-related pollution in water produces about 1.5 million tons of oil (containing 10-20 percent water). This oil is burned in specially adapted boilers in the heat generating plant at Stargard Szczecinski and in the boilers at "Keramzyt."

Despite this information which is optimistic in principle, it is important to realize that "Ship-Service's" state of possession and possibility is still insufficient, while water pollution control is not in accordance with regulations. The further supplying of necessary equipment demands the control of oil pollution and the eventual resolution of problems like the collection of ballast water or feces. As we stated in the introduction, the protection of the natural environment absorbs substantial measures and demands energetic action, when each delay and negligence bring many times higher secondary costs, which manifest themselves in other areas.

## Poisoning of Fish Investigated

Warsaw ZYCIE WARSZAWY in Polish 24 Jun 81 p 2

[Text] The directorate of the State Fishing Farms in Olesnica (Pila Voivodship) recently stated that in several ponds at the farm, 40,000 frying carp have succumbed to poisoning. To date the cause has not been established. There is no doubt, however, that the losses are significant, and this year's supply will be poorer by about 40 tons. This is one-tenth of the annual production at the Olesnica fish farm.

Initial research conducted by the Veterinary Institute in Poznan and the firm's own analytical laboratory, the purpose of which was to establish the causes of the poisoning, admitted to the possibility that chemical measures used to combat the *lymantria monacha* moth, which has been attacking the forests in northern Poland for the last 3 years, may have caused the poisoning. After spraying had taken place, torrential rains and violent storms followed, which could have caused runoff from higher forest areas into nearby ponds.

That version, however, is emphatically denied by foresters who state that chemical agents used to dust the forest areas could not have poisoned the fish.

### Sick Eels

On account of the continuing phenomenon of widespread eel parasites in the Puck and Gdansk Bays, resulting from toxic and bacterial diseases, the chief sanitary inspector once again warns against the purchase and the consumption of fish from uncertain sources (open-air markets and other haphazard places).

### Ecological Damage in Gdansk Bay

Warsaw TRYBUNA LUDU in Polish 5 Jun 81 pp 1, 4

[Article by Zbigniew Wrobel; portions within slantlines printed in boldface]

[Text] /A year ago, the situation was alarming. This year, it is dramatic. Next year, a calamity may take place--in Gdansk Bay and the integrally connected Puck Bay, an ecological time-bomb has exploded!/  
  
/The years of unconcerned and destitute fancy as regards sewage management in the Vistula River's drainage basin and along the Baltic coast bear fruit today in the contamination of the water in both bays which is lethal to life. What is worse is that the chances for a quick return to normal are not seen./

I was a participant at one of the saddest press conferences ever; i.e., /"The Ecological Catastrophe of Gdansk Bay--Its Causes, Results and Threats."/ A several-hour visitation of points where the contamination can be seen on a full scale preceded discussions with the Gdansk governor who initiated the all-Polish meeting of journalists.

We witnessed the results of poisonous sewage floating from the "East" waste treatment plant; e.g., /sick eels and large waste dumps of phosphates and gypsum at

Wislinka./ In 1973, citing bacterial pollution, authorities closed the first beaches at Puck. This was followed by closings in Sobieszewo, Orlowo, Jelitkowo and Brzezno; several beaches along sandbars in the Vistula and finally this year, all swimming areas in the bays. Water and sand are contaminated; during a storm, when splashes from waves create mists captured by the wind, maritime air also endangers the public health.

/At this moment, fish and fishermen are paying the price for the catastrophic state of the Baltic areas adjacent to the Tri-Cities of Gdansk, Gdynia and Sopot./ As a result of widespread eel parasites and eel infection from some unknown disease, over 360 individual fishermen and members of cooperatives have lost a great deal of earnings. Recently introduced payments for sanitary catches of sick fish have not compensated for those losses.

/Shortly, calculated in zlotys, the bill for losses will be paid by everyone living on the bay earning a living from tourism/; i.e., 14,000 persons employed in hotels, boarding houses and vacation centers for 34,000 tourists, as well as in private quarters for the same number of clients. /This year, there are still vacationers, because they reserved places earlier, but next year, they will not come. What for? It will be forbidden to swim in the sea or to sunbathe on the beach!/  
/

What is currently taking place in Gdansk Bay is not exclusively the concern of the Gdansk coast; it is a problem with ramifications for all of Poland and one that must interest everyone. /For almost 10 years, coastal ecologists have warned about the growing threat to the bay's natural environment; their prognoses have come true to the year./

Information like this has been taken lightly. Even now there is no special inclination to save the bay--stopping the degradation process will cost billions. On the coast, in order to limit during the course of 6-7 years only and exclusively the most threatening (from a sanitary point of view) contamination from bacterially treated feces, it is necessary to invest over 5 billion zlotys to enlarge the "East" waste-treatment plant, to enlarge the waste-treatment plant at Debogora near Gdynia, to build a waste-treatment plant for the Hel region at Swarzen, to enlarge the sewer system at Orlow and to find the means by which to deposit phosphates, gypsum and fly ash from electrical generating plants.

/This year, the amount of expenditures for devices to clean sewage in the area of Gdansk Bay is 46.5 million zlotys. That is only a drop in the bucket!/  
/

The Baltic coast can do no more. The rest depends on the whole country, because the Vistula River carries 94-96 percent of the pollutants. In the river's drainage basin, it is imperative that the deposit of contaminants be limited, and everyone must be interested in this task, from Silesia to Pomerania.

/We cannot count on the strength of nature--the complete renewal of the Baltic waters will take 30 years./

## Swimming Banned in Baltic

Gdansk GDANSK GLOS WYBRZEZA in Polish 2 Jun 81 p 1

[Text] The provincial sanitation inspector in Elblag, Dr Agnieszka Sulma, informed us yesterday that a subsequent test of the purity of coastal Baltic waters within the area of Elblag Voivodship had revealed a worsening situation. Water pollution is increasing, which creates a direct threat to the health of individuals swimming in those waters.

The ban on swimming and water sports at present is compulsory in the area from Wislouchcie through Mikoszewo, Jantar and Stegna to the western edge of Sztutowo through Krynica Morska to Piaski near the national border. It is not ruled out, however, that the banned zone will be shifted in the near future to the east, because analyses prove a worsening of coastal water quality even in the swimming areas at Sztutowo and Katy Rybackie.

With regard to the beaches in the area of Gdansk Bay within Elblag Voivodship, they can be used under the condition that the decision is subject to change in case of a deluge of polluted water from the bay or confirmation of an epidemiological threat. To be honest, however, the decision on that matter was made on feeling, because the Elblag sanitation and epidemiology office does not carry out defined tests on the purity of beach sands because of a lack of personnel and equipment. We feel that the Elblag governor should become interested in the problem as soon as possible.

In order to supplement this alarming information, it should be noted that Elblag Voivodship has other areas that have been inaccessible to swimming for several years; e.g., Wislany Lagoon, Suski Lake and Nogat.

## Ecological Disaster in Coastal Areas

Gdansk GDANSK GLOS WYBRZEZA in Polish 29-30 May 81 pp 1, 3

[Article by Krzysztof Myjkowski; portions within slantlines printed in boldface]

[Text] /For specialists in the area of environmental protection, it has been obvious for a long time that Poland has three regions of an exceptionally large and a continually growing threat of ecological catastrophe. They are the mining-smelting area of Silesia and two large industrial centers lying at the mouths of the two largest and most contaminated rivers, which carry sewage from practically the entire country--Gdansk and Szczecin. The central authorities also know about it, but they opted for the luxury of not acknowledging certain facts. Consequently, all reports about the rapidly growing threat to the Polish environment and its results were taken lightly./

A report on the subject, covering the eastern Baltic coast, was presented in 1973 by the presidium of the People's Voivodship Council in Gdansk to, among others, the chairman of the Council of Ministers. It was received in Warsaw with the manifestation, "hysteria from our comrades in the provinces." Now, the dismal visions contained in that report are being verified today to the last iota. The waters of Puck Bay, Gdansk Bay and Wislany Lagoon should practically be closed to tourism and

the economy, as they threaten people with an epidemic of various diseases at any moment. There is talk about the radioactive properties of phosphates deposited near Gdansk by the adjacent phosphate fertilizer plant. Particulates from the Siarkopol sulfur plant and gases from a refinery transform recently fertile soils in the Zulawy area into the desert along the left bank of the Vistula River.

Only fragments of knowledge about the state of the natural environment along the Baltic coast have appeared in the press. It may, therefore, be time to present a more complete picture of the situation.

#### The Bay--Not Everything Has Died

"Not everything has died"--that could be stated with a shred of hope, thinking of the waters in Gdansk Bay. It is a wonder, however, that certain life forms continue to survive in the bay, since it will soon have every possible characteristic of an ecological tragedy. Its bacteriological pollution in places even exceeds by 1,000 times the permissible levels of pathogenic bacteria in open waters. The rapid growth of coli bacteria leads one to assume that the number of bacteria is also growing, which causes, among others, dysentery, the dangerous disease among humans in the alimentary canal. Above all, the cause is the lack of biological-waste-treatment plants in the Gdansk region. In effect, the Tri-Cities are forced to deposit in the sea about 220 water-wagons per day of municipal sewage which is cleaned only mechanically. Over 3,000 cubic meters of incompletely cleaned sewage are disposed of daily in Puck, and 100 cubic meters in Jastarnia.

Besides the bacteriological threat in the bay, there are others in the water of a physicochemical variety; e.g., highly poisonous organic compounds and heavy metals (primarily mercury, lead, cadmium and arsenic), all of which exceed the allowable limits many times over. There are more and more detergents (laundry substances) and oil-based substances in the sea. More often than not, the Vistula is their source (70-96 percent), followed by ports, shipyards, maritime transportation, local industry and the municipal economy.

The result of this unhampered torrent of poisons spilling into the Baltic has already been described. All the same, I shall add and bring to mind once again the following:

The Tri-Cities' beaches are closed. Eels are dying in large numbers; thrown by the waves onto the shore, they spoil and threaten an epidemic. Bulltrout and salmon are disappearing completely, and herring are ill. Cod, living on the poisonous filth, themselves are becoming carriers of many diseases. The presence of compounds of mercury, lead, arsenic, zinc, copper and iron, all of which are dangerous to human health, as well as of polyvinyl chloride pesticides used in substances to protect plants, have been discovered in the muscles and liver of cod. Entire species of marine flora are disappearing. Hundreds of marine birds die during the course of a year from the plague.

Somewhat better is the state of inland waters along the Gdansk coast, with the exception of the Vistula. Nevertheless, since 1973, when the previously cited report from the People's Voivodship Council was issued, that state also has experienced a marked deterioration. Even 6 years ago on 1,400 km of the eight most important rivers in Gdansk Voivodship, 810 km were of first-class cleanliness (suitable for

swimming) and 150 km were third-class (designated exclusively for industrial and agricultural needs). In 1978, the Vistula lost for good its second-class status on the lower section. One year later, only 730 km of the coastal rivers, from the original 1,400 km, could be considered first-class. On the other hand, the amount of contaminated water is growing so rapidly that fourth- or fifth-classes of cleanliness may have to be introduced to define water quality. Included here, among others, is the Wierzyca from Starogard to the mouth. The Radunia, with numerous water intakes for the Tri-Cities and up to 1975 practically crystal clear, now has places where the water quality is third-class.

Relatively speaking, the state of the lakes is quite good. From about 600 lakes, only a few were completely destroyed (e.g., Karczemne and Klasztorne near Kartuzy, Wierzyko and Grabowski near Koscierzyna), the reason being the disposal of untreated municipal sewage in them. Nevertheless, quite a few lakes have already lost their first-class status to second-class (e.g., the popular Lake Mausz) because of nearby camping areas, which for the most part are not generally supplied with waste-treatment plants.

The principal cause of pollution in inland waters is the growth therein of biogenetic elements like nitrogen and phosphorus; i.e., those used in chemical agents to protect plants through field spraying. This is followed by the phenomenon called eutrofication; i.e., the rapid growth of plant life. After taking oxygen from the water, the plants quickly die and spoil. It is especially for this reason that life is dying in lakes and rivers deprived of oxygen. No less threatening is untreated sewage discharged from agriculture, agricultural service plants and area industry. And possibly the most threatening is the insignificant cataloguing and control of streams and ditches into which production waste from the State Center for Agricultural Machines, dairies or individual farms is illegally discharged, causing the growth of bacteriological pollutants.

#### Creeping Poison

A significantly larger ecological threat to the Baltic coast than the filth in the inland waters is municipal and industrial waste. In such large concentrations of people and production areas as the Tri-Cities, problems are created, which in the country's present situation become threatening to the same degree and difficult to resolve. The construction of suitable refuse dumps is extremely costly, and in the case of Gdansk or Gdynia almost impossible because of the absence of places to locate them. Meanwhile, the overloaded waste-storage areas are threatening the underground waters with contamination. It is especially forbidden to discharge anything into the underground waters, since it would mean severing the Gdansk coast from access to drinking water that at present is furnished by the Radun lakes, which also are fed by underground waters.

The best (and maybe the only) solution to the elimination of municipal waste would be the construction of a modern refuse burner. To be sure, it is more expensive than a normal refuse dump, but it would quickly pay itself off. A burner is also a producer of energy, building materials and sought after heavy metals.

Worse is the elimination of industrial waste. During the course of their 12 years' existence, the waste-storage areas at GZNF [Gdansk Phosphorous Fertilizer Plants] have produced over 7 million tons of phosphorus and gypsum. About 800 tons still

come out every month. In that amount, the deposits can possess radioactive properties. They are already causing illness among people, cattle and poultry, and sterilizing the soils in the Zulawy area. Harmful compounds penetrate into the depths of the earth, spreading in every direction at a speed of 20 meters per year. Meanwhile, the water intake for the southern neighborhoods of Gdansk is found only a few kilometers from the place of deposit. Consequently, if during the next 2 years the chemistry department does nothing to eliminate the waste-storage areas for phosphorus and gypsum, GZNF will have to be closed.

An equally burning need is the construction of a group of bunkers to store industrial waste with strong toxic properties. The 32nd version as regards the location of a refuse dump for the Tri-Cities' heat and power generating plant recently was rejected, as had been the case with the previous 31 because of a threatened ecological conflict. Drowned ash is therefore in the former lake at Letnica. However, that lake also has a limited capacity. In a short time, it will fill up to the top. What then? There is much to be said for the fact that the ash will have to be carried out for a distance of several score or even several hundred kilometers. At that time, the cost of transporting the slag will be more than the entire cost of creating electrical and heating energy for the Baltic coast.

#### One Can Still Breathe

The cleanest thing over the eastern Baltic is the air, inasmuch as "barely" a 40 percent increase in particulate emissions and not much more than a 130 percent increase in gaseous emissions has occurred since 1973 (as compared to the 1,000 times growth in water pollution, this increase in air pollution seems only a trifle). Moreover, the threat is felt only relatively close to small areas near the polluters; i.e., Siarkopol, GZNF, the heat and power generating plants, the ports loading apatite and some obsolete production plants like Fala and Olowianka or the gas plant at Gdansk. Each year those firms emit into the atmosphere several hundred tons of poisonous compounds; i.e., SO<sub>2</sub>, fluoride, nitrogen and hydrocarbons, as well as many particulates from the heating plants. The results of their pollution are evident, among others, on the monuments in Gdansk's Old Town Square. Air pollution is on the increase in Sopot and Starogard on account of too many small boilers in those towns. The causes of this pollution are primarily the absence on the market of dust-collecting devices like electrical filters and cyclones, the inefficient cleaning fixtures in many plants (mainly at GZNF) and the poor quality of fuel.

The problem of atmospheric pollution from transportation sources should be treated separately. These are especially harmful to human health as regards the content of lead compounds. As an indication of their very high concentrations, they cause symptoms of poisoning after only an hour's exposure among police officers directing traffic at intersections of major arterial roads within the Tri-Cities. Meanwhile, inspections conducted in transportation bases by the Division of Environmental Defense at the Provincial Office invariably confirm that over 50 percent of truck engines possess inefficient carburetors and exhaust systems. It is, therefore, necessary to build more quickly district roads, among others. The only Tri-Cities road unfortunately cannot wait any longer for an additional roadway and decent exits from the urban centers.

## What Is To Be Done?

It has been obvious for a long time what and when should be done to check the advancing pollution of the environment along the Baltic coast. Appropriate programs, perspectives and detailed specifications have been in the possession of the provincial office for years. The only question is: Who has to do it and how much will it cost?

During the course of the next 10 years, the construction of biological-waste-treatment plants for water-pollution control is essential; e.g., East (1 billion zlotys), Debogora (450 million zlotys) and Swarzewo (380 million zlotys), as well as the Tczew waste-treatment plant (390 million zlotys), for GZNF (700 million zlotys) and a sewer system for Gdynia-Orlowo (200 million zlotys). Further down the list, according to priorities of importance, are the biological-waste-treatment plants for Starogard and Koscierzyna, a sewer system for the fattening farms at Strzebielin, Niedamow and Grabow, as well as the Morena sewage collector to protect the water intake at Straszyn.

As regards air pollution control, small boilers and obsolete plants above all should be eliminated. Moreover, the construction of the following should be done; e.g.; installations to limit fluoride emissions from GZNF (200 million zlotys) and to prevent seepage of sulfur (50 million zlotys) and apatite during loading in Gdansk port.

Considerably more costly will be investments associated with the elimination of industrial and municipal waste. The solution to the problem of phosphorus and gypsum will cost approximately 1 billion zlotys. The cost of constructing a waste-storage area for EC-III at Gdynia will be 1.3 billion zlotys and for EC-II almost 400 million zlotys. A refuse burner would cost 300 million zlotys.

In other words, in order to make up for many years of neglect and merely to contain the process of annihilation of the natural environment along the Baltic coast, it will be necessary in the next 10 years to perform work valued at 20 billion zlotys. Absolutely essential is the allocation "for yesterday" of 2 billion zlotys, in order to complete the waste treatment plants East and Debogora and to build Swarzewo. In the meantime, the province has obtained tens of millions of zlotys for that purpose, but it lacks laborers and materials....

Consequently, fatal errors in investment planning and distribution of means for individual tasks are haunting us with a vengeance. We have built new smelters, ports, refineries and works, and we have restored castles, cutting off at the same time the branch upon which the biological protection of our inhabitants was hanging. Now we are too poor suddenly to allocate tens of billions of zlotys to environmental protection. The entire tragic aspect of this situation, however, lies in the fact that ways must be found to bring the country out of this crisis so as to endure the worst in possibly the best condition.

Therefore, investment associated with protection of the natural environment should be found at the very top of tasks which we must perform in the near future. I dare say that environmental protection should be given the same priority as food distribution and apartment construction. I also am convinced that all persons and offices responsible for the future of the Baltic coast and the country share this view.

## Ecological Threat on Gdansk Coast

Lodz GLOS ROBOTNICZY in Polish 7 May 81 pp 1, 4

[Text] The number of seaside areas where swimming is not restricted is dwindling systematically. The closing of more beaches should be expected.

These include, among others, the less polluted fragments of Gdansk Bay and the Tri-Cities' beaches at Jelitkowo, Stogi and Sopot. Regular tests of the purity of sea water conducted by sanitary and epidemiological authorities are more and more disturbing. These include the swimming areas at Orlowo, Sopot, Jelitkowo and Brzezno. Disqualified are swimming areas on Sobieszewski Island. It should be counted on that the beach at Jelitkowo will be closed to swimming.

Such is the high price the inhabitants of the Tri-Cities are paying for industrialization of the urban agglomeration; e.g., Siarkopol, Fosfory, Rafineria and North Port, all of which have been built in recent years. Every year more sewage is poured into Gdansk Bay. The East waste-treatment plant was adjusted to process 90,000 cubic meters of sewage per day. In the meantime, over 130,000 cubic meters go into the bay. Every plant breakdown threatens the incalculable consequences and the irreversible results of an ecological disaster. These facts have been known for many years. Scientists and specialists from the Voivodship Sanitary-Epidemiological Station in Gdansk have spoken for years about the threat to the natural environment along the Baltic coast. An example of the advancing ecological threat in particular is Puck Bay, which has become a sewage reservoir. A bacteriological and epidemiological threat exists in the bay's entire area. There is no way that swimming or water sports can take place in the bay.

The situation has become alarming. If investments are not made, and quickly, to build waste-treatment plants, then the ecological threat will envelop further regions of Gdansk Bay, as well as the beaches on the amber coast up to Krynica Morska.

Recently, the sea waves threw dead eels for several days onto the beaches between Jelitkowo and Sopot. They were all ulcerated. It still has not been confirmed whether the cause was some fish disease or the toxicity of the waters in Gdansk Bay. The alarm continues on the beaches of the Gdansk coast, and in particular on those of the Tri-Cities and Puck Bay.

### The Sanitary Inspector Warns

The provincial sanitary inspector in Gdansk has issued a warning as regards the purchase of raw or smoked eels at open-air markets and other hazardous places, resulting from the presence of bacterial diseases in the fish.

Ulcerating necrosis of skin and muscles, which was confirmed for the first time in the summer of last year and observed sporadically, has appeared more frequently this year. The sea throws onto the shore dead fish with deep wounds and cuts. Fishermen also catch sick eels. Unfortunately, the fishermen do not always bury or destroy them, as there are cases where the eels are sold at the fish markets. Infected eel meat can be harmful to people.

Observations and initial tests prove that the general cause of the widespread illness among eels is the increase of bacterial and chemical pollution in the waters of Gdansk Bay.

## BACTERIA TO SEED CLOUDS UNDER STUDY

Jerusalem THE JERUSALEM POST in English 8 Jul 81 p 8

[Article by Galina Vromen]

[Text]

TEL AVIV. — Some newly discovered and yet unnamed bacteria found on citrus plants may provide a key to increasing rainfall, according to two Tel Aviv University scientists.

Freezing agents derived from bacteria could one day replace silver iodide as a common cloud seeding material, say microbiologist Saul Yankofsky and physicist Zev Levin, who have isolated bacteria with unusual freezing properties at the university's laboratories.

Although seeding clouds with silver iodide has helped increase rainfall in some parts of Israel by as much as 20 per cent, scientists have long argued that if they could find a better agent — one that caused ice crystals to form at higher temperatures — more rainfall could be wrung from clouds.

That agent, Yankofsky and Levin believe, could be bacteria like the ones they have isolated. The bacteria were discovered by accident when the two scientists tried to figure out why citrus fruits suffer from frost damage at temperatures just fractionally below freezing.

Something on the citrus leaf must allow ice crystals to form at unusually high temperatures to cause the frost damage, they reasoned. While that agent or bacteria might be harmful to citrus plants, it had

potential as an ice forming agent in clouds to produce rain, the Tel Aviv University team realized.

"We took citrus leaves and deliberately froze them and found that different patches froze at different temperatures. We isolated the patches that froze at relatively high temperatures and obtained some yellow bacteria," Yankofsky explained in a recent interview.

The crucial function of cloud seeding is to provide a nucleus at a higher than natural temperature around which ice crystals form. Rain falls when a cloud becomes heavy with ice crystals. The average cloud — not seeded — needs to reach a temperature of about minus 15 degrees before ice crystals will form. Seeded with silver iodide, clouds can begin forming crystals at about minus 8 degrees.

But with the new bacteria, Yankofsky is finding that crystals begin forming at even higher temperatures of around minus 2 degrees.

"We are really in the early stages, still far from actually hiring planes and pilots and seeding clouds," said Yankofsky. "But the characteristics of these bacteria in the laboratory indicate that next to ice itself, they are one of the most efficient nucleators known."

High temperature bacterial nucleators may eventually prove less expensive, ecologically safer and more effective in producing rain than existing cloud seeding agents.

The major advantage of high-temperature nucleators lies in their ability to be effective on low-drifting clouds. Under Israel's winter conditions, unseeded clouds must usually have a top about two kilometres above the ground to reach temperatures cold enough to form ice crystals. That happens effectively about 15 times a year. With silver iodide, cloud tops need to be up only about half that height. But with the new bacterial agents, the plentiful winter clouds that drift only half a kilometre above the ground in Israel could one day produce more rain.

Bacterial nucleators are also likely to be less expensive than the precious silver iodide currently used. But any new agent will be cost-effective only if it succeeds in reducing the frequency of cloud-seeding flights, according to the Mekorot water company. "It is pilots, fuel and planes that make cloud seeding expensive — not the

silver iodide," a Mekorot spokesman told *The Jerusalem Post*.

The unknown ecological effects of silver iodide have also stimulated research in alternative seeding material. While there is little clear evidence that silver iodide directly harms people, it is generally believed that heavy metals retard enzyme action in plants and animals.

But the new bacterial agents create their own ecological problems. Yankofsky is concerned about finding a substance that will kill off the bacteria after it is used. "We want to get the benefit of nucleation without the disadvantages of a potentially pathogenic organism. We must find safeguards to prevent it from harming frost-sensitive plants," he said.

The Tel Aviv team faces another major obstacle in developing the potential cloud-seeding material. They have found many of the isolated bacteria inactive. "We are trying to find ways to make more of the bacteria active and also to characterize the chemical action to eventually create artificial particles," he explained.

CSO: 5000/4722

## DEADLINE ON BANNING DDT COULD BE FOUR YEARS

## Concentration Could Be Halved

Salisbury THE HERALD in English 5 Aug 81 pp 9, 8

[Text] DDT may be banned in Zimbabwe in about four years, depending on research into alternatives and their effects, the chairman of the Natural Resources Board, Mr Lance Smith, says.

Answering questions at a meeting of the Wildlife Society of Zimbabwe in Salisbury on Monday, he said: "This is just a guess. I am not a scientist and I am just guessing from the various opinions of people concerned in this matter."

The level of use could be very much lower in about two years. Steps were being taken by various agencies with the backing of the board to reduce it.

The NRB had to take a balanced, practical view of the problem and of every other matter it considered, he said. Besides the environmental aspect the board was forced to consider the political and economic effect of its recommendations.

The NRB recognised the dangers of DDT and every effort was being made to eliminate the pesticide. Much progress had already been made. The environmental conservation committee had been re-established and research was being done.

Sharing the platform was Professor Geoffrey Bond, the board's vice-chairman and the chairman of the environmental conservation committee.

The committee, said Professor Bond, had three major terms of reference; to find the state of pollution in Zimbabwe, to make the public aware of the dangers and to look at the legislation on pollution control.

DDT was one of the problems being studied. It is used in three areas: agriculture, vector control and health.

"The use in agriculture can be diminished," he said. "Quite a lot of far-

mers are thinking very strongly and seriously on how to get rid of DDT from their operations." Only maize and cotton were now registered crops for DDT.

Tsetse had recognised areas it had been driven from because control operations had been limited during the liberation war and cattle returning to the newly affected areas would have problems.

"On health, there are a very large number of people who wouldn't survive the next rainy season if DDT or some other insecticide wasn't used." He said if DDT was banned in

the world's malaria areas about one million people would die each year.

The pesticide problem was a regional one and information was difficult to obtain from some states although efforts were being made by several agencies in Zimbabwe.

He accepted fully the figures and results on DDT levels in birds of prey in Mr Ken Thomson's research. The survey had been scientific and accurate and although there was a high probability that the levels found in American birds would af-

fect species in this country in the same way, there was as yet no complete proof.

Research was being done for a higher degree by a student at the University of Zimbabwe on the rate of breakdown of DDT into harmless products.

A doctor in the audience, asked by Mr Smith and Professor Bond to talk about the medical side of DDT research, said tests done in Zimbabwe showed average levels of

DDT in fat and mothers' milk were around the levels of the highest figures recorded in the rest of the world.

They were also considerably higher than the safe maximums recommended by the World Health Organisation.

Intake levels of the poison were apparently 50 to 100 times as high as the WHO recommended safe limits.

Replying to a question, he agreed that tobacco was a greater risk than DDT but people had the

option not to smoke — they could not choose whether DDT was in their environment or not.

Mr Smith, explaining part of a recent letter he wrote to the Herald, said that while use of DDT had declined in agriculture and tactics operations had been reduced during the war, tactics control was back in full swing.

But the Tactics Control Department had agreed to halve the concentrations used in spraying operations.

#### 'HERALD' Questions Use

Salisbury THE HERALD in English 5 Aug 81 p 8

[Editorial: "It's All Boloney"]

[Text]

DESPITE massive evidence on the dangers of using DDT produced by an official of the Department of National Parks and Wild Life Management, the chairman of the Natural Resources Board, Mr Lance Smith, doesn't think time has come yet to ban the harmful chemical because there is no effective alternative.

The problem in the past has been that NRB has been an interested party in the DDT controversy. That is why it has taken a rather a lackadaisical approach.

A powerful farming lobby still favours DDT. The NRB must separate such sectional interests from the interests of all the people of the country. These demand the immediate banning of the chemical.

Mr Smith's arguments that DDT may be banned if suitable alternatives are found is all boloney. How it is that Europe and the United States can manage without it?

CSO: 5000/5045

NRB CHAIRMAN SAYS INDUSTRY AWARE OF POLLUTION DANGER

Salisbury THE HERALD in English 6 Aug 81 p 8

[Text] Zimbabwe has to learn from the mistakes of other countries and ensure air pollution never exceeds the present very low level, the vice-chairman of the Natural Resources Board, Professor Geoffrey Bond, has urged.

Speaking to the Wildlife Society of Zimbabwe this week, Professor Bond, who is also chairman of the board's environmental conservation committee, praised Zimbabwean industry for its attitude.

Prevention

"Management in this country, particularly in industry, is very much on our side. They know what a mess their predecessors have made in other countries. It costs money to clean up this mess and prevention is cheaper than cure."

Professor Bond said his committee had found a deep and realistic awareness on the problems of development and pollution.

He had been impressed on a recent trip to Redcliff to see how comparatively clean the Zisco steel works were.

The pink cloud at Zisco was mostly water vapour with a trace of sulphur and some suspended ferric oxide; this quickly settled out on soil already naturally rich in the mineral and so caused no problems. "I know that when wind blows the wrong way people in Redcliff do get pink sheets, though."

Zimbabwe did not have the acid rain which caused so many problems in Europe but could suffer from the global problems of rising carbon dioxide levels and the effects of aerosol sprays.

CSO: 5000/5045

## POLLUTION PLAGUES KIRGHIZ SSR'S LAKE ISSYK-KUL'

Frunze SOVETSKAYA KIRGIZIYA in Russian 8 Jul 81 p 4

[Article by R. Belousova, head of the Administration to Regulate the Use of the Environment under the Kirgiz SSR Ministry of Land Reclamation and Water Management; S. Tokoldoshev, deputy head of the UGKS of the Kirgiz SSR; and L. Zholtukhamedova, correspondent of SOVETSKAYA KIRGIZIYA: "The Lake Should Be Clean (Return to the Subject of Why Pollution of Issyk-Kul' Continues)"]

[Text] The Issyk-Kul'skiy rayon has a significant number of holiday hotels, vacation homes and pioneer camps. Often the environmental protection measures for the entire resort zone of Issyk-Kul' are judged from this rayon. But unfortunately the surprise inspection brigade has had to state that the discharges of harmful substances into the natural environment of the Issyk-Kul' area that are associated with industrial and agrarian human activity are still great.

We turn from the road before Rybach'ye towards the barely marked construction site. Everything here is as if it was just started, but the project was set up back in 1965 and construction of the Rybach'ye treatment works was started in 1969. Then it was halted and started again. The excavators and tractors hummed. The last "beginning" was in 1978.

The Ministry of Communal Services (customer) and the Ministry of Construction (contractor) shared our concern. But in observing an unwritten tradition, they presented a mass of arguments justifying the construction delay. But are they justified? It is worth comparing the information of one ministry with the information of another in order to understand that the treatment works could have been built on schedule if the customer and the contractor had agreed upon their forces and potentialities. What is the picture now? It was reported in the gorispolkom that 275,000 rubles have already been assimilated in this construction, although only 242,000 have been provided per year by the plan. At the same time, while the Ministry of Communal Services expected that these resources would be used to construct the treatment works proper, the Ministry of Construction "extended" a second collector branch. This lack of agreement generated poor management. Thus, the builders are waiting for equipment for the collector, but do not know when it will arrive. The Ministry of Communal Services, probably in accordance with its plans, brought expensive, imported and domestic treatment equipment here 3 years ago. It is rusting and going out of order because it was dumped straight on the ground. The disagreement in actions also resulted in the

fact that the construction materials, lumber and precast reinforced concrete walls (one such slab weighs about 8 tons), were scattered all over the city. In order to ship them, transportation, people and time are needed.

We did not receive a distinct answer to the question of when the construction will finally begin in earnest.

By the way, 242,000 is a very small sum. This quantity of allocated funds is explained by the fact that in previous years the contractor did not assimilate a smaller sum. In a word, there is blatant inert compromise for every type of reason. And the danger of municipal wastewater entering the lake remains. An accident could happen at the pumping station, at the first collector branch. That is why no matter what the reason is for the delay in the start-up of the Rybach'ye treatment works, it cannot be tolerated.

It is now difficult to encounter leaders of farms and enterprises that would simply announce that they are indifferent to nature and its protection. On the contrary, they are always for nature. But if only there were more actions behind their words.

T. Anvarbekov, the director of the M. V. Frunze Sovkhoz, gave us a hostile reception. "Which of my farms is still close to the lake? They were resituated long ago." We had to take him to the section of Sary-Kamysh to show him only one (the others were vacated at the beginning of summer because the cattle were out to pasture) located impermissibly close to the lake. In the face of the obvious, the director again presented a mass of "justifying" reasons. Although we sympathize with him, he forgot about nature. However, this obstinacy was sad rather than funny. Anvarbekov confidently (although with a certain accurately rehearsed naivety) ended: "Let the building stand, it will fall down by itself. We will collect the dirt and trash. The fuel and lubricants spilled on the ground... So what? How will they enter the lake? You probably do not know that we almost never have rain." (By the way, returning from the surprise inspection, it did rain precisely on the territory of this sovkhoz).

We found out that this year the sovkhoz needed to build seven sheep pens, but has not found financing until now because, they say, the Gosplan is delaying the title lists. As proof that the sovkhoz was looking for solutions to the formed situation, a telegram to the oblispolkom was shown. No matter what happened, 6 months have already passed. When will they be built?

We were immediately told of a large number of telegrams and letters to different departments at the Rybach'ye meat-packing plant whose existing treatment works are overloaded and are operating in an unqualified manner. As a consequence, the sewer system often breaks. In addition, they say that they phone the Ministry of the Meat and Dairy Industry about this every day. Does not paper red tape too often replace actions?

The waste water of the meat-packing plant now enters a mechanical (already long obsolete) treatment link, then the filtering fields, although the territory that these fields occupies, as the workers of the meat-packing plant itself stress, should have been made into parks, beaches and plowed into gardens long ago. The

meat packing plant needs a pretreatment plant. Financing for its construction has been discovered this year, however, the workers of the mobile mechanized column of the Ministry of the Meat and Dairy Industry are not hurrying here. They are probably doing something more important. After pretreatment, the waste water of the meat-packing plant could be discharged into the general municipal sewage system. This would free land and the sewer pipes that do not withstand the pressure would stop breaking. But there is a persistent silence from the Ministry of the Meat and Dairy Industry. Perhaps it is true that they sincerely think that the mobile mechanized column is working indefatigably at the meat-packing plant facilities!

It should be said that the Ministry of the Meat and Dairy Industry sent an answer to the previous publication of the newspaper ("Around the Lake," SOVETSKAYA KIRGIZIYA, 9 June 1981). They said that "there is constant departmental monitoring of the operation of the treatment works located in the Issyk-Kul' zone." However, they did not mention the Rybach'ye meat-packing plant in the answer. In the opinion of the ministry, everything turned out well there.

We are travelling in a beautiful city which has become very green in recent years. Good! There is clean sea air, Issyk-Kul' is nearby. But what is this? There is a dirty puddle in the road. The pipe broke again and the waste water of the meat-packing plant splashed out onto the streets.

According to the data of the administration for hydrometeorology and environmental control, from systematic sample taking it is evident that the industrial enterprises, service stations, animal husbandry complexes are indirect polluters of the lake through underground water and surface effluent. In the region of Rybach'ye, for example, where the port, ship repair plant and meat-packing plant are located, an increased content of petroleum products, organic substances, copper, zinc and phenols is observed in the water as before.

In completing the surprise inspection of the Issyk-Kul' region, we decided to look into the third section of stud farm No. 54. Here we could only shrug. In the final analysis what is the point of inspecting the sanitary epidemiological station?! The farm buildings literally are buried in liquid manure, slowly, but steadily moving towards the lake. The workers "reassured" us. "It will dry up and we will collect it." We see around us enormous piles of many years of manure which undoubtedly represent a very dangerous source of lake pollution.

In the near future, a major scientific research vessel "Imeni 17th S'yezda Kompartii Kirgizii" will begin to cruise the lake area. It will be used to make detailed observations at any point of the lake in any weather. But we also need shore laboratories to observe the cleanliness of the air medium. Back in 1973, a decree of the republic government was adopted to assign buildings for hydrochemical laboratories, however Cholpon-Ate is clearly not hurrying to execute it.

The specialists of many professions are working on the problem of efficient zoning and the sanitary development of the Issyk-Kul' coast. However, as the surprise inspection showed, the problems of protecting the rare environment are often not solved because what is created by the scientific and engineering thinking is slowly assimilated and introduced into practice. These problems exist because of the indifference of certain officials and specific workers.

9035

CSO: 1800/613

## INTERNATIONAL AFFAIRS

### BRIEFS

DENMARK, FRG TOXIC WASTE PACT--Since the state of Hessen accepted the poison drums from Harboore, Denmark has offered to accept and treat organic solvents from Germany at Kommunekemi in Nyborg. Here one is at this time about to develop the activity for destruction of such waste to a capacity which corresponds to twice Denmark's total requirement. "It is a general consideration that each country should take care of its own industrial waste. But in Denmark we do not have the possibility for treating waste with high mercury content. We therefore made contact with the German authorities in Hessen, where the poison can be placed in mineshafts at a depth of 700 meters. In the letter to the German authorities we mentioned that we in that case could treat German waste of organic solvents. The answer was that they were happy about the offer but it was not of interest for the time being," director of Kommunekemi Willy Brauer tells BERLINGSKE. "Each year Germany accepts between 500 and 1000 tons of mercury waste from Denmark. But the waste from Cheminova and other activities had been so mixed up that a chemical reaction had taken place at the depot, and we were therefore unable to define accurately what there actually was besides the fact that we knew it had a high mercury content. This was the reason why we approached the Germans, who were willing to accept the 600 tons from Harboore in addition to the normal annual deliveries from Kommunekemi," says Willy Brauer. "The poison drums in Harboore will be sent off in the the immediate future. All formalities have been arranged. The poison has been filled into large plastic bags inside the drums, and these are equipped with clasp lids and have just been painted and are ready for transport," says Willy Brauer. [Text] [Copenhagen BERLINGSKE TIDENDE in Danish 7 Jul 81 p 5 by Jens Thomsen] 8958

CSO: 500/2145

## REACTIVATION OF ENVIRONMENTAL COUNCIL SUGGESTED

Nicosia THE CYPRUS WEEKLY in English 17-23 Jul; 81 p 4

## [Text]

A special conference in Nicosia this week welcomed an official suggestion for the reactivation of the Council for the Preservation of the Environment.

Several speakers pointed out, however, that the government must indicate its real interest in the protection of the environment by ceasing its scandalous toleration of the violation of legislation and rules and regulations for the protection of the environment by powerful vested interest groups.

The conference was convened by Nicos Pattichis, the Minister of Agriculture and Natural Resources, specifically to consider the reactivation of the Council for the Preservation of the Environment, which has not met since 1972. In addition to representatives of various government departments, those attending included representatives of a number of societies and associations actively interested in environmental protection.

**Serious**

Pattichis, who has spoken out repeatedly recently about the damage already inflicted on the environment, repeated his warning that "neglect can cause irreparable harm."

"The issue of the protection of the environment is one of the most serious we

have to face", he added. This was why he had arranged the special conference for the reactivation of the long dormant Council.

Andreas Pissarides, the officer in charge of the recently formed Government Environmental Service said the widely representative Council was established in 1969, but has not met since 1972, primarily as a result of the upheaval and tragedy caused by the Turkish invasion and occupation of North Cyprus.

**Measures**

This very tragedy, Pissarides stressed, has made the problem of protecting the environment far more vital than ever because with the continuing foreign occupation the density of the population has been doubled, while the available territory and natural resources have been halved.

The objective of the reactivated Council, Pissarides said, would be to propose means, and practical measures for the protection of the environment.

It was in the general discussion that followed that the government was criticised by Pavlos Neophytou, Secretary of the Cyprus Ornithological Society, and Alex Efthymiou, President of the Cyprus Society for the Protection of the Environment, for failing to enforce existing legislation.

Both cited some glaring examples of this failure of the government to act, within the law.

**Powers**

George Lanitis, the Cyprus Weekly diarist, speaking on behalf of the Cyprus Broadcasting Corporation said the reactivated Council should not be simply another "toothless lion" like the Cyprus Tourism Organisation, but should be vested with sufficient powers to ensure its decisions are carried out.

Antonios Andronicou, the Director General of the CTO, who was also present, suggested that the terms of reference of the Council should be clearly spelled out to enable it to function properly.

Many of the representatives suggested that in addition to concerning itself with remedial and preventive measures the Council should also be entrusted with launching an island-wide publicity campaign to promote an environmental awareness, particularly among schoolchildren.

**Cases**

After nearly two hours of discussion the conference decided to reconvene in October. In the meantime the

representatives present will submit suggestions on the terms of reference of the Council and the powers it should yield, so that these may be passed on to the Council of Ministers for consideration.

The President of the Society for the Protection of the Environment also suggested that the representatives should also list cases of the destruction, or threat, to the environment that need ur-

gent remedial action, before the damage becomes irreparable. (Readers of the Cyprus Weekly aware of any such cases should write to the Society for the Protection of the Environment, P.O. Box 3810, Nicosia).

Summing up, Pattichis said he was glad to see the evident enthusiasm of those present and their determination to work "so that the evil that has happened and is continuing to happen will come to an end."

CSO: 5000/5547

ENVIRONMENT MINISTER SIGNS BILL TO AID GLASS RECYCLING

Copenhagen BERLINGSKE TIDENDE in Danish 10 Jul 81 pt III p 1

[Article by Erik Holst, minister of environment: "Environmental and Industrial Considerations in Balance"]

[Text] In Denmark we have had for generations a unique system for reuse of beer and soda-water bottles. This means, for example, that broken one-time bottles and empty beer cans do not lie about and litter the sides of the roads, the woods, and the beaches, as we can see them doing in other countries. The system is no less unique and highly regarded internationally because it functions so effectively: Over 98 percent of all bottles are returned by the consumers and used over 30 times.

Every Dane knows how the system works and uses it literally daily. But I wonder whether everybody also knows that the system is superior to all other packaging systems because it is more economical of resources, does not fill up the garbage cans, causes less pollution of the water and the air, and takes less energy.

The Danish return system has been exposed since the early 1970's to an increasing threat of collapse.

First came the threat from cans and one-time bottles. To meet that threat, in 1970 the Folketing passed a law on beer and soft-drink containers. That law was passed so that we could safeguard our reuse system. In the beer field it has not been necessary to resort to the law. We were in the gratifying situation here that all parties concerned-- brewers, retailers, and importers--were disposed to solve the problem themselves. That was done by an agreement to reduce the use of cans to nil by the end of 1981. Such an agreement could not be reached in the soda-water field. For that reason one-time packaging of soda water was prohibited in 1977.

Later we got more and more types of returnable bottles. That development was a threat to the system. If we get too many types of bottle, we cannot count on it that every dealer will accept return of all types.

To ensure that the Danish system of reuse of beer and soda-water bottles can continue, I have just signed a notice that signifies a prohibition of one-time packaging and a standardization of returnable bottles.

Before I signed the notice, I had a number of discussions with the EC commission. The subject was finding a balance between concern for the environment and concern for free trade.

In the notice I have just signed the balance is achieved.

During the negotiations with the commission we also discussed the complaint that the French firm of Perrier and the Danish importer addressed to the commission concerning the Danish regulations, which was reported in BERLINGSKE TIDENDE Tuesday 7 July 1981.

After these discussions the commission asked the firm to seek a solution to the question directly with the Danish authorities. I am convinced that if the firm applies to the Ministry of Environment it can find a reasonable solution together with the latter.

8815

CSO: 5000/2147

## INDUSTRY COUNCIL PROTESTS PLANNED ENVIRONMENT LAW CHANGE

Copenhagen BERLINGSKE TIDENDE in Danish 10 Jul 81 pt III p 3

[Report by Jens Olaf Jersild based on interview with Elo Hartig]

[Text] The Ministry of Environment's proposal to revise the environmental protection law is encountering strong opposition on the part of the Industry Council, where the head of the council's environmental office, Elo Hartig, office head and civil engineer, says no to greater investments in improvement of the environment.

He interprets the ministry's proposal as a tightening up of the law and predicts that the new law will cost the firms customers and society a loss of jobs. That is due to environmental investments and the long delay in decisions on cases.

### Unacceptable Bill

"It seems quite unacceptable to have a stricter law right at a time when many firms are in a tight economic situation.

"The firms have already made the most necessary investments, which have brought industrial pollution under control. We have reached a point where it quite simply is not reasonable to increase the investments," says Elo Hartig, who says that the proposed changes in the environmental protection law will lead to more litigation and consequently to longer delays in decisions.

Elo Hartig: "We are convinced that the number of cases will increase drastically when the new law is put into effect, because it opens up the possibility of letting 'professional environmentalists' act as plaintiffs in cases all over the country.

### Environmental Cases in Spite of Happy Neighbors

"Today only the people who are neighbors and therefore directly affected by, e.g., expansion of a factory can go to the authorities and complain against the firm. According to the new law the nationwide environmental organizations can file a case against any firm in Denmark. Even if the firm's neighbors have nothing to complain about.

"We already have a flood of cases, the waiting time for a decision on which is typically a year, before the firm gets a green light to go ahead with, e.g., an expansion. Time after time we see the firms losing customers because they cannot

increase production fast enough. And that means in turn that the firms must discontinue projects during the trial of the cases, because the customers have had enough. That means loss of jobs.

#### Faster Settlement

"The Industry Council has suggested that the firms be given permission to go ahead with an expansion if the commune administration in the first instance has given a green light. If a later decision by the environmental appeal board shows that there must be environmental improvements in the extension, the firm would of course have to pay. That way it would be possible to avoid the long-drawn-out trial of the case, which costs customers and jobs."

Instead, the Ministry of Environment in its proposal for revision of the law has opened up the possibility of the environmental administration's handling from the beginning and deciding the larger cases, which experience shows end up with the administration or the environmental appeal board under any circumstances.

Elo Hartig says that this proposal does not effectively attack the problem of the long waiting time, and that the new procedure will also adversely affect the communes' relations with the firms. For now some decisions come from central authorities without the local population's having had a chance to influence the decision.

#### Debating Club Instead of a Board

In addition, in Elo Hartig's opinion, the environmental appeal board is being converted from "a respected environmental court into a debating club." That is due to the fact that the bill gives nationwide environmentalist and consumer organizations such as the Sport Fishermen's Association, the Nature Conservation Association of Denmark, and the Consumer Council the chance to appoint experts who will assist the board in deciding on environmental cases.

"And these organizations have no knowledge of or practical experience with the problems connected with establishing a production plant. They are not professional organizations, but special interest organizations," says Elo Hartig.

In the near future the Industry Council's branch organizations will look more closely at the ministry's proposal for revision of the Environmental Protection Law. In the middle of August the Industry Council will meet with the Ministry of Environment to present the criticism of the bill officially. The bill is expected to be presented to the Folketing during July.

8815

CSO: 5000/2147

FIRMS CITE ENVIRONMENT LAW AS CAUSE FOR LEAVING COUNTRY

Copenhagen BERLINGSKE TIDENDE in Danish 14 Jul 81 pt III p 1

[Article by Jens Olaf Jersild]

[Text] Dim prospects of obtaining the necessary environment permits is the main reason that Lovens Kemiske Fabrik, a Danish pharmaceutical firm, has chosen to build a synthetic manufacturing plant in Ireland instead of in Denmark. Earlier, the firm waited more than 2 years for a decision on environmental factors.

"The manufacturing plant will be ready in 2 years. At that time, about 10 percent of the plant's total production in Ballerup will be transferred to Ireland. Furthermore, the production in Ireland will be expanded to include new penicillin products. The portion of the production that will be transferred presently employs about 40, but Lovens Kemiske Fabrik will try to maintain its present employment in Denmark by providing other jobs at the Ballerup plant," said director Helmuth Nielsen.

Industry Criticism

The announcement that Lovens Kemiske Fabrik will move part of its production to a new manufacturing plant presently under construction in Ireland due to Denmark's environmental demands came shortly after Industry Council representatives had criticized a new environmental law proposal. Industry feels that the new proposal is a further tightening of the law and could mean strict environmental demands and loss of jobs.

Director Helmuth Nielsen: "Lovens Kemiske Fabrik was faced with the situation of having to choose between constructing a pharmaceutical plant in Ireland or an additional plant in Ballerup near its present manufacturing plant. The new plant will manufacture nothing but penicillin products because American authorities require that the manufacture of penicillin and other pharmaceutical products be kept strictly separate. Otherwise, we will not be allowed to export to the United States."

All the Same

"As far as we were concerned, it was all the same whether we built the new plant in Ireland or in Ballerup.

But, being given to understand by national and municipal authorities that it would be very difficult to obtain permits to construct a new pharmaceutical plant on our property in Ballerup, we chose Ireland. We have already secured the necessary permits to use new substances in our manufacturing process. In Denmark we would have had to apply each time we were to use a new substance," said director Helmuth Nielsen.

#### Waited 2 Years

"Lovens Kemiske Fabrik asked environment authorities some time ago for permission to construct another pharmaceutical plant in Ballerup. Following a decision by the Environment Board of Appeals, permission was granted after 2 years. But, by that time, economic conditions had changed so that we decided to wait and see. And now the permit has expired.

"The requirement by the United States authorities, which allegedly will be followed by several European countries, has forced Lovens Kemiske Fabrik to build a new pharmaceutical plant that will manufacture nothing but penicillin products. In this way we can keep other plants free of penicillin products and prevent penicillin from getting into other pharmaceutical goods.

"Lovens Kemiske Fabrik has operated a manufacturing plant in Ireland for the last 25 years and, in Denmark, we also have plants in Esbjerg and Vejen besides Ballerup."

#### Completed in 1983

"When the plant in Ireland is completed in 1983, it will be the only Lovens plant to manufacture penicillin products from the raw materials stage to a completely finished product. However, we will continue to operate pharmaceutical plants in Denmark that will produce raw materials for penicillin.

"The plant in Ireland can complete the manufacturing process of penicillin, but it will also be Lovens only pharmaceutical plant that can produce raw materials for new types of penicillin."

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CSO: 5000/2150

PARLIAMENTARY CONSENSUS ON ENVIRONMENT COLLAPSING

Copenhagen BERLINGSKE TIDENDE in Danish 14 Jul 81 pt III p 1

[Article by Rasmus Nielsen]

[Text] For the first time in the 8-year history of the environment law, the government cannot expect broad political support for its environment policy. Liberals and Conservatives strongly oppose Environment Minister Erik Holst's proposal to allow certain national organizations to file grievances in connection with important environment cases—even if local residents or politicians have no complaints.

"The proposal is a direct plot against municipal autonomy, which cannot be in accordance with the parliamentary majority's desire for local autonomy," said Ole Bernt Henriksen, a Conservative member of the parliamentary Environment Committee. "Grievances by national environment organizations will be a completely new and disturbing element in the local decision process," he continued. Ole Bernt Henriksen is disappointed about the fact that Conservatives have not been asked to participate in the efforts to revise the environment law even though the party helped pass the original law in 1973.

Hans Jorgen Holm, Liberal Party, feels that the proposal for greater right to file grievances will dilute local authorities' political responsibility. "The greater the opportunity to file a grievance, the more difficult for authorities to maintain a grip on their administrative responsibilities. We must have confidence that local administrators themselves will supervise the enforcement of the environment law."

The Liberal (V) and Conservative (K) parties also oppose the environment minister's proposal to expand the highest court of appeals, the Environment Board of Appeals, with representatives from the labor movement's Trade Council as well as representatives from consumer and environment organizations.

"But if national organizations obtain the right to file grievance, representatives from the two big nonsocialist parties want to introduce an obligatory deposit that will cover the costs if a case is lost. In this way," according to Ole Bernt Henriksen, "we can prevent organizations from filing fallacious grievances for public relations reasons alone." He pointed out that individuals will, of course, still have the opportunity to file local grievances without cost under any circumstance.

Earlier in BERLINGSKE, the Council of Industry stressed the danger that an increase in the number of grievances could cost jobs. Birgith Mogensen, Democratic Center Party, agrees with that:

"The proposed expanded right to file grievances could be most threatening to jobs. It should be sufficient that these organizations are represented on the Environment Board of Appeals."

Svend Taanqvist, Social Democratic Party, did not deny that the environment minister's new proposal could cost jobs, but said that the Social Democrats in Parliament had weighed environment concerns against employment. Personally, he figured there will be much support for the effort to further prioritize environmental concerns.

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CSO: 5000/2150

## DENMARK

### BRIEFS

WASTE USE--In the proposal for revision of the environmental legislation which now has been sent to organizations and authorities for a hearing, an effort is made to give the Environmental Administration more authority as compared to the municipalities with respect to the waste planning and recycling of waste. From the Environmental Administration it has been reported that today they are not always ready to guarantee the most advantageous removal of waste. Recycling on a greater extent is desired because even if recycling projects seldom are profitable for the private economy, they should be socioeconomically advantageous, according to the report. Recycling can in many cases be extremely reasonable. It is also correct that one could readily imagine dividing the alliance with that type of projects, which makes them socially profitable in spite of a failing profitability for the private economy. Before a decision is made to use resources for activities of that type, it is, however, necessary to set up a foundation for decisions which can clearly demonstrate the social profitability. It is not sufficient to limit oneself to build on the concept that recycling is inherently conceived of as a positively loaded concept, and that there therefore most certainly are large advantages beyond the possible advantages to the private economy in such an activity. So far the environmental authorities have not quite succeeded in showing the clear social advantages in new, systematic recycling projects. The attempts at this which were made, for instance, in connection with considerations of a recycled newsprint fabrication were not convincing from a social point of view. It is therefore not satisfactory either if plans are made with a new environmental legislation for increased state control with the municipalities in the waste area--which can inherently become a big burden for these--unless the Environmental Administration is able to show that the projects will become socially reasonable. In that respect it would not be sufficient that one hopes for a reasonable profitability some time in the future. Many other places in the public sector there are products which can exhibit a reasonable social profitability. All these activities must again be considered in view of a large investment requirement in the private economy, which should serve to improve the competitive position, help the balance of payments and thus create increased employment on a tenable economic foundation. Recycling projects must in the end also be evaluated on that background. [Text][Copenhagen BERLINGSKE TIDENDE in Danish 7 Jul 81 p 6] 8958

CSO: 5000/2145

HAZARDOUS WASTE PENALTIES URGED--The penalties should be stiffened for the firms that do not dispose of their wastes dangerous to the environment in a responsible way. So says Mayor Orla Syllested, of Aarhus, chairman of Commune Chemistry. "If a firm is exposed today, the penalty is not in a reasonable relation to the damage it causes by not obeying the law on the obligation to dispose of wastes dangerous to the environment," the mayor says. [Text] [Copenhagen BERLINGSKE TIDENDE in Danish 10 Jul 81 p 3] 8815

CSO: 5000/2147

## HIGH-SULPHUR COAL USED AT GARDANNE: ECONOMY, ECOLOGY CONFLICT

Paris LE MONDE in French 16 Jul 81 p 28

[Article by Jean Contrucci: "New Conflict Between Ecology and Economy: The Gardanne Plant Will Release 538 Tons of Sulphur per Day Into the Atmosphere"]

[Text] In its time, the project had been hailed with victory bulletins. While it had been thought to be slowly dying the Provence Coal Company at Gardanne (Bouches-du-Rhone), whose production of 1.6 million tons of coal per year is used at 80 percent in the power plant located on-site, received an unhoped-for boost: In January, 1980, the government authorized the French National Coal Board to implement the "Large Provence Complex." It was intended to work a lignite deposit discovered in 1975 and containing 56 million tons of coal which could be extracted at the rate of 1.6 million tons per year, thus insuring the availability of 2,000 jobs for thirty years.

But considering its sulphur content (4 to 6 percent), the Gardanne coal can only be used in thermal power plants. This is what was being done until recently using 4 furnaces feeding electric generators. The second phase of the "Large Provence Complex" included construction of a new 600 Megawatt power plant designated as "Group 5." Start-up was planned for 1984. The total investment was projected to be 2.5 billion francs, 500 million of which were for the mining facility alone. Work got underway.

But details of the project, and particular the environmental impact assessment, became better known, associations for the preservation of the environment began worrying. Basically, Groups 4 and 5 will eject 538 tons of sulphur dioxide a day into the atmosphere, since no de-sulphuration process has been planned. This figure is roughly equivalent to the cumulated total of rejects from all the industries in the Fos-Etang-de-Berre area (550 tons per day).

## A 300-Meter Smokestack

The Department of Mines has decreed that the Provence Coal Company must erect a 300-meter smokestack, with a 30-meter diameter at the base, and a 9-meter diameter at the top. Sulphur-bearing waste will therefore be ejected above the temperature-inversion layer which maintains pollution at ground level, especially in calm weather in the winter. "This smokestack, which is as high as the Eiffel Tower, will constitute an esthetic aggression to the Aix area" observed Mrs Nicole Teboul, President of the Aix Committee of the Regional Union for the Preservation of Nature

and the Environment. "The reason it reaches such dimensions is that no de-sulphuration process has been planned. This creates a double danger: esthetically, and for people's health. Aside from this, the usefulness of the project is not being contested, since 2,000 jobs for workers in the Arc valley depend upon it. We are asking that a de-sulphuration process be studied and implemented."

"The Provence Coal Company is conscious of the problem" is the answer from Company Headquarters at Gardanne. The new plant will be equipped with a 99 percent efficient dust-removal system, and it is dust which catalyzes the SO<sub>2</sub>. Smoke emissions will take place at a height such that they will be diluted. "The SO<sub>2</sub> concentration," claim engineers, "is less than .2 parts per thousand and dangerous levels will not be reached." They add that "In case this is not sufficient, we are integrated within the Fos emergency network, and if necessary, we can reduce or even stop operation, since the plant is planned as a support plant only."

#### The Japanese and American Examples

Those responsible for the project claim that the two existing de-sulphuration processes used abroad, and in particular in Japan, have been studied. The first one would increase the cost by 400 million francs, and the second one by 520 million, plus an additional 4 to 6 percent increase in operating costs. The company management claims that their efficiency has only been proven in the case of coal containing up to 1 percent sulphur. Today, there is no known process usable for coal with 4 to 5 times higher sulphur content. In addition, 4 years would be required for the installations to become fully efficient, whereas start-up is planned within 2 years.

Associations for environmental protection have not been convinced by these arguments and they have multiplied petitions, meetings, and operations intended to sensitize elected officials to the problem. They point to successful experiments, particularly in the United States where de-sulphuration of coal with 50 to 80 percent sulphur content has been achieved. The associations cite the work of Mrs Alix Audurier-Cros, a geographer with a doctorate in industrial installations who has performed an in-depth examination of the environmental impact study from the meteorological, climatic, and geographic standpoints. Her conclusions condemn the project as presently planned.

While agreeing that a reduction in sulphur emission would mean an increase of 5 percent in the operating cost per kilowatt-hour, Mrs Audurier-Cros claims, with proof to back her up, that in winter the stack will frequently be under the temperature inversion layer. She also fears the possibility that the emission of SO<sub>2</sub> in the proximity of an atmospheric cooland producing important quantities of water vapor may generate sulphuric acid aerosols. She therefore requests additional studies and a reinforced watch on the site and the neighboring area.

Association leaders denounce the atmospheric dilution process as resulting in the dispersion of pollution over a much larger area and defeating the efforts made by businessmen in the Fos area to reduce their levels of emission of toxic products.

These arguments have been successful. The local elected officials are now worried about the consequences of this project. Mr Christian de Barbarin, socialist mayor of Vauvenargues and president of the Union of Mayors of the Bouches-du-Rhone area called a meeting of the local officials involved on July 15. Mr de Barbarin stated: "I would like to create a commission of experts in order to obtain as accurate a view as possible on this whole question. If this would require additional governmental expenses, we should know about it as soon as possible."

The Gardanne Municipal Council is requesting the study of a de-sulphuration process which would allow the project to go on while protecting people's health.

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CSO: 5000/2155

ENVIRONMENTAL QUALITY REPORTED WORSENING, HARSHER LAWS SOUGHT

Rotterdam NRC HANDELSBLAD in Dutch 2 Jul 81 p 2

[Text] Utrecht 2 July—The past two years saw some progress in environmental legislation, but the condition of the environment in the Netherlands is worsening.

Such is the conclusion of the Nature and Environment Foundation based on its report over 1979 and 1980. According to the foundation only harsher environmental legislation can lead to real improvement in the years to come.

Nature and Environment finds that the prosecution of environmental offences is badly neglected. It is usually to prosecute old offences because they become barred by the statutes of limitations and new offences are also hardly ever dealt with.

Yesterday, at the presentation of the report in Utrecht, General President P. Nijhoff stated that the environmental movement has completed the phase of "frustrating rear-guard skirmishes." It is now a vanguard on its way to a future with a friendlier environment.

Its tactics should shift from defense to offense, which means that it should not confine itself to "putting out fires" but stimulate the development of, for instance, alternate sources of energy, different means of transportation, and other means of agriculture.

Automobile Lobby

Nijhoff said: "We are always fighting established interests." As examples he named the "automobile lobby," organized agricultural interests, industry, and, to some extent, also the civil service.

Among other things he had the report on reindustrialization of the Wagner Committee in mind when he said: "From all kinds of directions we hear complaints that the environmental policies, as conceived by Minister Ginjaar, are too ambitious. They have been put down and criticized as expensive frills which had better be eliminated. The labor movement has now joined the chorus. But we say: "Those policies were emphatically called for by the Second Chamber."

He called the Vonhoff Committee's suggestion (departmental reorganization to take environmental hygiene away from the Ministry of Public Health and make it a part of the Ministry of Environmental Development questionable and obsolete. The Nature

and Environment Foundation prefers an up to par ministry under the caption:  
"Mankind, Environment, and Nature." This department should have three legs:  
environmental hygiene, health protection, and protection of nature and landscape  
(including wildlife management).

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